

CFTT

TECHNOLOGY TRANSFER CONTRACTS BASED ON FIDIC STANDARDS

BUILDINGS

AIRPORTS
BRIDGES
DAMS
ROADS
RAILWAYS
HARBOURS

POWER PLANTS

CONSULTANT





OWNER



CONTRACTOR

ELECTRICAL

MECHANICAL

CIVIL

BANGALORE SEMINAR - 1991



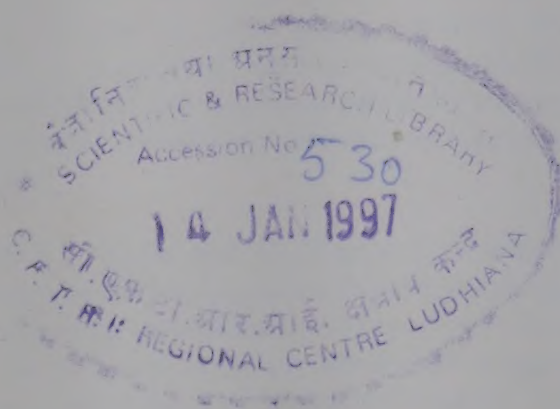
ASIAN AND PACIFIC CENTRE FOR TRANSFER OF TECHNOLOGY
NEW DELHI, INDIA

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14/1/97

**LEGAL AND FINANCIAL MATTERS OF TURNKEY
TECHNOLOGY TRANSFER CONTRACTS
BASED ON FIDIC STANDARDS**

**Report of the Seminar held in
Bangalore, India - September 1991**



AUGUST 1993

**ASIAN AND PACIFIC CENTRE FOR TRANSFER OF TECHNOLOGY
NEW DELHI, INDIA**

PREFACE

The Asian and Pacific Centre for Transfer of Technology (APCTT) was established in 1977 at Bangalore, India. The Centre operates as a United Nations regional centre under the aegis of the Economic and Social Commission for Asia and the Pacific (ESCAP). The statute of the Centre was adopted as the basis of the Centre's operation at the 41st session of the Commission of ESCAP in 1985. The Centre receives its overall direction from the annual session of ESCAP and specific guidelines from the annual sessions of its Governing Board. The Centre has a Technical Advisory Committee to provide guidance on technical matters relating to its programme. The objectives of the Centre are to assist the members and associate members of ESCAP through strengthening their capabilities to develop, transfer, adapt and apply technology, improve the terms of transfer of technology; and to identify and promote the development and transfer of technologies relevant to the region. In pursuance of the above objectives and to promote regional and interregional cooperation in technology development and transfer, the Centre organizes training for appropriate personnel engaged in development and transfer of technologies and provides advisory and consultancy services.

Recognising the important role of development projects in developing countries, it was considered that two clear needs of this activity were : (a) to educate and train the key people from governments, private industries and consultants within developing nations who would be involved in development project work; (b) to improve the rate of technology transfer as development projects get implemented.

In the work programme of APCTT, it was felt that action could be taken to meet the first of the recognised needs so that the people trained could have a better capacity to become involved in development projects. This would enable the second need - to improve the rate of technology transfer to be met. More details relating to how the programme involved the target groups and those relating to organizational matters of the seminar are available in Part A of the Overview of this publication. This section also lists the conclusions and recommendations of the seminar as well as the way this work could be pursued in the future seminars that may be held in other developing countries of the region.

Mr K.B. Norris and Mr Charles B. Molineaux had kindly agreed to prepare detailed lectures relating to various aspects pertaining to legal and financial matters of turnkey technology transfer contracts based on FIDIC standards. It had been envisaged that this valuable work could be utilized with advantage in several other seminars or workshops on the subject to be held in the future. To facilitate such an activity, APCTT is now bringing out a detailed report of the seminar which was held in 1991.

The course material prepared by Mr Norris and Mr Molineaux and used during the seminar has been suitably edited and special sub-headings provided in the course material for each lecture in order to highlight the important segments covered. By and large, the structure of the lectures as presented during the seminar has been retained. It may be noted that Lectures 1 to 17 are related to the Red Book Guide, Lectures 18 to 26 to the Yellow Book Guide and Lectures 29 and 30 to the White Book Guide of the

FIDIC Secretariat. Lectures 27 and 28 deal with other forms of contract. The Case Studies have also been retained and the first twenty are relevant to the areas covered in the Red Book and the last ten similarly are relevant to the Yellow Book. While it may be only a matter of convenience between the Course Director and the Second Trainer to share the total content of the programme, the lecture notes or the course material prepared by Mr Norris were for Lecture Nos. 1, 2, 3, 6, 7, 9, 11, 13, 15, 17, 18, 20, 23, 25, 27, 28, 29 and 31. The lecture notes prepared by Mr Molineaux were for Lecture Nos. 2, 4, 5, 8, 10, 12, 15, 16, 19, 21, 22, 24, 26 and 30.

Since the course material was so closely connected to the Red, Yellow and White Books, it was felt that for a proper appreciation of this material these books should be available to the readers along with the course material. APCTT is very thankful to the FIDIC Secretariat for their spontaneous response to APCTT's request to reproduce these three books by making them a part of the bound volume of the report of the seminar.

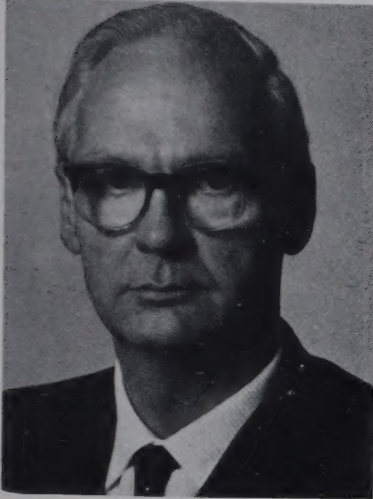
The financial arrangements for this programme were made available through the generous support of the Asian Development Bank (ADB) and the United Nations Development Programme (UNDP) through Project RAS/90/020 - Technology Transfer and Management. APCTT would like to record its deep appreciation for the support extended to APCTT by the ADB and UNDP. APCTT's thanks are also due to several divisions of the Economic and Social Commission for Asia and the Pacific (ESCAP) to progress this programme from its inception to completion and in particular to the Divisions of Technical Cooperation and Industry, Human Settlements and Environment.

It is true that the seminar evolved a lot of interest in 1991. But the objectives of the programme of APCTT go far beyond the seminar of 1991. In order to pursue this programme in many developing countries of the region further initiative and support is necessary and it is hoped that this publication will become an important step in pursuing this initiative in the years ahead.

August 1993

K.V. Swaminathan
Acting Director

PRINCIPAL SPEAKERS



K.B. (Tony) Norris

Tony Norris has had many years experience in consulting engineering with Sir Alexander Gibb & Partners of the UK, including fifteen years on construction sites in Uganda, Zimbabwe and Pakistan and five years in the offices of the World Bank in Washington D.C. He retired as Senior Consultant to the firm. He is now in private practice as an arbitrator and independent expert.

Tony Norris served for many years on the FIDIC Civil Engineering Contracts Committee, latterly as Chairman, and participated in the preparation of the Fourth Edition of the Red Book and of the Guide to its use. He also served on the FIDIC Turnkey Contract Task Committee which is preparing Conditions of Contract for

Design - Build (Turnkey) Works. In February 1993, he was appointed Chairman of the newly established FIDIC Contracts Committee with responsibility for coordinating the preparation of all FIDIC model forms of Contract and other FIDIC documents relating to contract management.

He is a frequent speaker at engineering conferences and workshops and has contributed numerous articles to the technical press. In June 1992, Tony Norris was presented with the first Louis Prangey award for significant service to FIDIC and to the profession of independent consulting engineering.

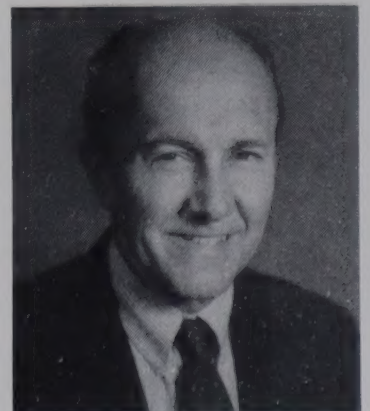
Tony Norris is a Fellow of the Institution of Civil Engineers and a Fellow of the American Society of Civil Engineers.

Charles Molineaux has specialized in construction and engineering law and represented owners, engineers and contractors in questions relating to international, federal, local government and private projects. He practiced law in New York City, appearing in federal and state courts, in trial and appellate work, and before arbitration and contract appeals boards for twenty years. He served as General Counsel of a major international construction contractor, from 1980 to 1987, and is now in private law practice in Washington D.C.

As an arbitrator, he has participated in construction cases, both ad hoc and under institutional rules. He has also lectured and conducted training in arbitration for the International Law Institute, the Cairo Arbitration Centre and the American Arbitration Association and he serves as a member of the advisory board of the BNA World Arbitration and Mediation Report.

He recently served on the liaison committee of the International Federation of Consulting Engineers (FIDIC) which published in 1987 the Fourth Edition of its widely used Conditions of Contract for Works of Civil Engineering Construction.

Charles Molineaux is a Fellow of the American Bar Foundation, an affiliate member of the American Society of Civil Engineers, and a trustee of The Moles.



Charles B. Molineaux

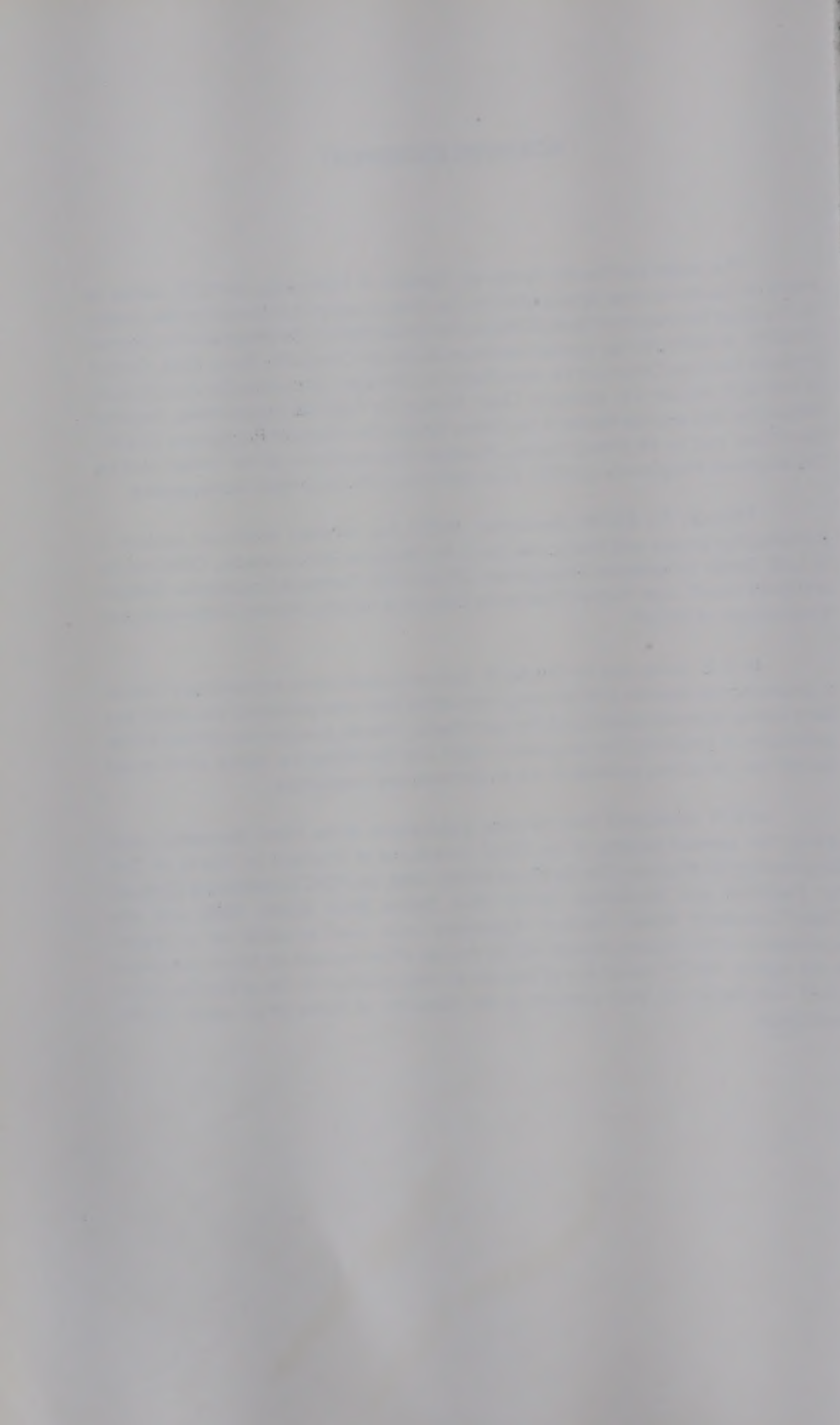
ACKNOWLEDGEMENT

The Asian and Pacific Centre for Transfer of Technology (APCTT) wishes to place on record its deep appreciation for the financial support extended to this project by the Asian Development Bank (ADB) and the United Nations Development Programme (UNDP). In particular our special thanks are due to Mr Osman R.I. Bako, Chief, Central Projects Services Office and Dr Jean-Pierre Vu, Manager, Consulting Services Division of the ADB and Mr S.K. Zacharia, Chief, Division for Regional Programmes, Regional Bureau for Asia and the Pacific of the United Nations Development Programme (UNDP), New York and to Mr Erling Dessau, Resident Representative of the United Nations Development Programme (UNDP), New Delhi, the principal project representative.

Through the ESCAP Secretariat, APCTT has received enormous support in pursuing this project and thanks are due to Mr Moeljono Partosoedarso, Chief and Mr S. Latif, Senior Programme Management Officer of the Technical Cooperation Division and to Mr Kazi F. Jalal, former Chief of the Division of Industry, Human Settlements and Environment of ESCAP.

Mr K.B. Norris and Mr Charles B. Molineaux have taken extraordinary interest in preparing the material and the clarity with which they have presented the details has left a lasting impression among all the participants. Thanks are also due to them for the assistance in preparing the completion report and identifying the points which could benefit the use of this material for future seminars and workshops.

APCTT considered that the three publications of the FIDIC Secretariat used during the seminar relating to the FIDIC Conditions of Contract for Works of Civil Engineering Construction (The Red Book Guide, 1989), the FIDIC Conditions of Contract for Electrical and Mechanical Works (The Yellow Book Guide, 1988) and the Client/Consultant Model Services Agreement were very essential for a proper appreciation of the course material and for the use of this material for future workshops in the region. APCTT would like to express its deep gratitude to the authorities of the FIDIC Secretariat for their consent to the inclusion of these three books in this publication.



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PART A - OVERVIEW

1. INTRODUCTION

1.1 Projects in Development

Projects are the basic building blocks of development. Without successful project identification, preparation and implementation, development plans are no more than wishes and developing nations would remain stagnant or regress. The paucity of well conceived projects is a primary reason for the poor record of plan implementation in many developing countries.

Analysts have found that most developing nations simply do not have adequate institutional capacity or trained personnel to plan and implement projects effectively. "In one country after another", former World Bank official Albert Waterston contends, "it has been discovered that a major limitation in implementing projects and programmes, and in operating them upon completion, is not financial resources, but administrative capacity".

1.2 Why Development Projects Fail ?

In an extensive analysis of international assistance agencies' project management procedures in developing countries, Mr Dennis A. Rondinelli of the Technology and Development Institute of the East-West Centre in Honolulu, has identified several key reasons which either seriously delay projects or cause them to fail. They include :

- * ineffective project planning and preparation;
- * faulty appraisal and selection processes;
- * defective project design;
- * problems in start-up and activation;
- * inadequate project execution, operation and supervision; and
- * deficiencies in diffusion and evaluation of project results and follow-up action.

1.3 Problems Arising From Lack of Expertise

In many of these situations problems can be identified which can be traced to a lack of experience in projects of this type and magnitude by the local people involved. For convenience these may be categorised and for example such categorisation could include : those arising from improper allocation of resources, personnel and administrative arrangements in contractual execution. To be more precise, the following will give a picture of the problems that can be traced to improper allocation of resources :

- (i) Inadequate analysis of the absorptive capacity of developing countries to finance, execute and operate specific types of projects in each sector.
- (ii) Failure to plan for policy changes necessary for adequate project support, such as tax incentives, land reforms, and subsidies or other benefits to encourage related private investment.
- (iii) Failure to account adequately in financial plans for inflation, price increases and rises in salary levels affecting overall cost of the project.

- (iv) Inability of national governments to commit available resources to feasible projects due to antiquated or inadequate capital planning and budgeting systems.
- (v) Difficulty in obtaining local resources during construction of the project leading to delay and cost overruns.

In a similar manner, examples of problems attributable to personnel could be :

- (i) Insufficient capacity or incompetence of local contractors. Lack of adequately trained and competent project managers.
- (ii) High turnover in personnel, poor personnel training, inadequate salary structures.
- (iii) Conflict among project staff or between project administrators and professional staff.
- (iv) Inability to attract foreign consultants and contractors to supplement local consultant and contractor capability.
- (v) Failure to develop indigenous management skill by using projects as training operations; excessive use of expatriates in project planning and operating; failure to develop counterpart administrators.

Next, problems which can be traced to administrative arrangements in the execution of contracts could be :

- (i) Failure to define the relationship of the project organization to broader institutional and administrative structures.
- (ii) Overly complex or ineffective bidding and contracting procedures.
- (iii) Over extension of national government organizational and financial resources in project execution.
- (iv) Excessive fragmentation of responsibility for implementation among government organizations and agencies.
- (v) Inadequate monitoring and control by central government ministries responsible for project implementation.

1.4 Broad Appraisal of the Situation

It can be concluded that unrealistic government estimates of administrative capability continue to result in failure to deliver counterpart funds, legislative and organizational reforms, technical and administrative skills or physical infrastructure crucial to effective project implementation. Approval of projects that are beyond the absorptive capacity of national governments not only result in project failures, but drain scarce resources from other development activities.

A need has been felt for a stronger emphasis on project implementation as a training mechanism for developing indigenous skills. "The need for highly trained development administrators, especially those with project management skills, is a recurring theme of international assistance evaluation reports. Developing countries require two types of trained project administrators, those who can plan and coordinate the entire project cycle as an integrated process and those who can manage the project as an organizational entity once it is selected and approved."

1.5 Action Plan

Two clear needs arose from this appraisal :

- (a) To educate and train the key people from governments, private industries and consultants within developing nations who will be involved in development project work.
- (b) To improve the rate of technology transfer as development projects are implemented.

In the work programme of APCTT it was felt that action may be taken to meet the first of these needs so that the people trained could have a better capacity to become involved in development projects. This would enable the second need - to improve the rate of technology transfer - to be met.

2. PREPARATORY PHASE AT APCTT

In the context of the appraisal and to implement the draft plan evolved, APCTT engaged the services of Beca Worley International Consultants (BWI), New Zealand to prepare the terms of reference in the context of organizing a series of seminars on Legal and Financial Matters of Turnkey Technology Contracts based on FIDIC standards. The contact with BWI started in 1989. The terms of reference from BWI was obtained towards the end of 1989.

Based on this and making appropriate modifications to it APCTT sought financial support for the same from UNDP and ADB. The financing of the seminar was agreed to by ADB in January 1991 and UNDP as a part of a free standing project (RAS/90/020) proposed by APCTT. Approval for the same was received in January 1991.

In preparing the course material required for the seminar, APCTT obtained the support of the Federation Internationale des Ingenierus-Conseils (FIDIC) from whom copies of Conditions of Contract for Works of Civil Engineering Construction as well for Electrical and Mechanical Works were procured. Also in this series, copies relating to Client/Consultant - Model Services Agreement were obtained. APCTT also engaged Mr K.B. Norris to be the Course Director in July 1991; soon Mr Charles Moulineaux agreed to be the Second Trainer. To reinforce the seminar, APCTT sought the participation of guest speakers with experience in project management of large projects in the region.

APCTT then sent out invitations to countries in the region to nominate their representative to take part in a seminar scheduled for September 1991. APCTT also advertised the event to attract self-sponsored participants with a registration fee of US \$ 200/-.

The seminar was scheduled in consultation with the Course Director, funding agencies and participants from the member countries to take place from 9-12 September 1993.

3. OBJECTIVES AND TARGET GROUPS

This seminar was intended to teach officials, private industry and local consultants involved in the design and construction of major industrial plants such as power and chemical plants about the legal and financial aspects of turnkey contracts.

3.1 Objectives

The purposes of the seminar were :

- (i) To familiarise those attending with the legal and financial requirements of FIDIC contracts;
- (ii) To encourage local Asian and Pacific industries and consultants to bid for turnkey projects;
- (iii) To increase the rate of technology transfer through the involvement of local officials and companies in such projects;
- (iv) To make local companies more aware of the potential benefits to them from technology transfer projects;
- (v) To improve the project management skills of local officials;
- (vi) To maximise the local content of work on such projects and hence the cash flow to local economies.

3.2 Target Groups

The target area was the Asia and Pacific region. The major target groups in this region were:

- (i) Government officials;
- (ii) Engineering consultants;
- (iii) Engineering contractors;

The target level for these seminars was the middle management and senior management level i.e. the decision makers.

All those attending were expected to have relevant technical professional qualifications (officials and consultants) or relevant managerial experience (contractors) and to be functioning as a manager within one of the target organizations.

4. THE SEMINAR

4.1 Organizational Matters

The seminar was conducted at the APCTT premises in Bangalore, India from 9 to 13 September 1991. The seminar was conducted by the Course Director, Mr K.B. Norris, Chairman, FIDIC Civil Engineering Contracts Committee, and by a Second Trainer, Mr Charles B. Molineaux of Dempsey, Bastianelli Brown and Touhey, U S A. Four guest speakers participated in the seminar. They were : Mr M W Goklany, Chairman, Desein Pvt Ltd, Mr Howard Martindale, Vice Chairman and Managing Director, Krone Communications Ltd, Dr G R Bhatta, Project Director, Karnali (Chisapani) Multipurpose Project, Ministry of Water Resources, Nepal and Mr M.R.S.N. Rao, Executive Director, Karnataka State Industrial Investment and Development Corporation Ltd.

A copy of the programme as issued to delegates, is attached as Appendix A

Forty three delegates attended and a list is attached as Appendix B. Of these 43 delegates, 19 were from India, 3 each from Korea and Pakistan, 2 each from Bangladesh, China, Indonesia, Malaysia, Nepal, Philippines and Thailand and 1 each from Fiji, Norway, Sri Lanka, and Vietnam. It must be pointed out that out of 43 participants who attended the seminar, 23 were self-sponsored and travelled at their own cost from their place of work and paid a registration fee of US \$ 200/-. Self-sponsored participants came from India, Pakistan, Republic of Korea, Sri Lanka and Norway.

4.2 Subject Matter of the Seminar

The Course was based upon the standard forms of contract prepared and published by FIDIC. After an introduction to FIDIC, papers were delivered on tendering procedure, prequalification, tender evaluation and documents forming the contract. There followed a series of papers on the Conditions of Contract for Works of Civil Engineering Construction (the Red Book), Conditions of Contract for Electrical and Mechanical Works (the Yellow Book) and Client/Consultant Model Services Agreement (the White Book). In addition papers were presented on other forms of contract, such as turnkey, design and build, lump sum, etc.

Each morning and afternoon, other than on the last day, periods were devoted to workshops for case studies and analysis. For this purpose, the delegates were divided into six groups of 7 or 8 with as great a spread of disciplines and nationalities as possible. The groups discussed and analysed the case studies among themselves before all delegates reassembled in the lecture theatre. A spokesman for each group presented the findings. Then the case and the findings were discussed in general forum.

Periods were provided for discussions (questions and answers) and some opportunities were created for additional questions between papers.

4.3 Conclusions and Recommendations of the Seminar

Many of the delegates found the course rather too intense. In part, this may be due to the strain of concentrating in a foreign language for many hours a day. Additionally, most of the delegates were interested to hear and discuss the experiences of others from the region and would have liked more opportunities to do so.

It is, therefore, for consideration whether a future seminar should be of a longer duration - a week and a half or two weeks. Although, the question arises whether countries would be prepared to release government servants for more than a week. The same applies to firms in relation to staff members.

In view of the interest shown in turnkey projects and the financial aspects, it would be useful if a merchant banker with knowledge in this field could be invited to be a guest speaker. Depending on the venue of the seminar, he might not need much encouragement and might be willing to deliver two papers, one on the general principles and another on a case study. Possibly also, the World Bank or UNDP would be able to send a representative with a knowledge of projects in developing countries.

If it is decided to plan for a longer seminar, more time could be allotted for workshops and discussion. Thought could also be given to inviting (sponsored) representatives of each country to make a half-hour presentation on the practices and problems in their own country. This could lead to useful discussion, although it would be desirable to make clear that the presentation and discussion should be restricted to engineering/technical matters and that political issues should not be introduced.

The achievement of this programme could be observed from the fact that several participants in the relevant fields from within the country and outside were mobilised for the workshop. The awareness created and the potential it has in enhancing the capabilities of the countries could be reflected in their enhanced capability in the planning, construction and completion of major projects in their countries. Further, this could also result in a series of programmes which they could organize in their own countries in which the negotiators and managers relating to such projects would be very well trained and become familiarised with the FIDIC standards.

FUTURE SEMINARS

It was stated that 43 participants took part in the seminar. This was no doubt a beginning to meet the action plan indicated in sub-part 1.5 in the Introduction. It may also be recalled that this was to improve the rate of technology transfer as developmental projects were implemented. Looking back it was no doubt a very interesting experience in which the seminar fulfilled one of the stated objectives which APCTT had chalked out. But looking ahead, it looks as though so much more requires to be done if the intended objective of improving the flow of technology to the developing countries is to continue and the people therein benefit from the flow of such technology.

The documentation provided by FIDIC, based on years of work contributed by a very large number of their members is still very much relevant and will be useful. No doubt new amendments and fresh experience gained will be incorporated in the documentation that will be made available in the future. Similarly, the course material prepared by Mr K.B. Norris and Mr Charles Moulineaux has made it possible for a good appreciation of the contents of the Red Book, Yellow Book and White Book. Their experience in dealing with this subject has been embedded in the course material that they have prepared and its utility is very much there for many others to benefit. The efforts made by them have benefitted the 43 participants who took part in the seminar but it is obvious that it could also benefit several hundreds of others if only such programmes could be held again and again in different centres in the ESCAP region. Keeping this in view, APCTT decided that course material could be put together in the form of a publication brought out the Centre so that many other member countries in the region could benefit. No doubt we are aware that the personal touch given by the Course Director would not be available to the participants in other places, when only the course material is used; perhaps, the organizers may make efforts to see whether the present Course Director and the Second Trainer would still be available to help them. If such national workshops, rather than international workshops, are held the cost of such workshops could be relatively modest and in that sense the initiative of APCTT in organizing the seminar and the efforts taken by the Course Director in preparing the material would go further in meeting the overall objective of making this experience built on to the professionals in the region.

Now about the Guest Speakers ! In the seminar held and as indicated earlier, there were four guest speakers and they related their specific experiences and mostly the experience of India of agencies in dealing with domestic contracts as well as a few overseas ones. The material presented by the guest speaker from Nepal covered his experience in a hydro electric project. In looking to the future seminars particularly with a bias for national seminars, it appears that a fresh selection of guest speakers would be required depending upon where such future seminars are to be held. In the light of this assessment and the hope that in each country where such a national seminar is planned, there will be at least a small number of experts who could be persuaded to be guest speakers in such a seminar, APCTT, considered that in this volume the papers or speeches of the four guest speakers need not be reproduced. APCTT's thanks certainly goes out in full measure to them for their participation and contribution to the seminar that was held in September 1991.

Since the course material was so closely integrated with the Red Book, Yellow Book and White Book provided by the FIDIC Secretariat, for a proper appreciation, it was felt necessary that along with the course material these books should also be available to the readers. APCTT is very thankful to FIDIC for their spontaneous response in giving APCTT permission to reproduce these three books making them a part of the bound volume of the final report of the seminar.

Appendix A

PROGRAMME

GENERAL

Opening Day

Session I

Registration
Welcome Address
Introduction to FIDIC
International Procurement

Session II

Tendering Procedure, including Prequalification
Documents Forming the Contract and Sufficiency of Tender
Workshop - Case Studies and Analysis

Session III

Guest Speaker
Discussion
Contract Law and the Legal Framework
Role and Duties of the Engineer
Discussion

Session IV

Workshop - Case Studies and Analysis
Close of Day 1

Second Day

RED BOOK

Session V

Form of Contract and Definitions
General Obligations of the Contractor
Commencement

Session VI

Bonds, Securities and Insurance
Discussion
Workshop - Case Studies and Analysis

Session VII

Guest Speaker
Discussion
Certificates and Payments
Time for Completion and Delays
Discussion

Session VIII

Workshop - Case Studies and Analysis
Close of Day 2

Third Day

RED BOOK (Contd.)

Session IX

Variations and Claims
Default of the Parties
Defects Liability Period
Discussion

Session X

Use of Part II
Workshop - Case Studies and Analysis

Session XI

Guest Speaker
Discussion
Resolution of Disputes (continued)
Discussion

Session XII

YELLOW BOOK

Form of Contract and Definitions
Workshop - Case Studies and Analysis
Close of Day 3

Fourth Day

YELLOW BOOK (Contd.)

Session XIII

Certificates and Payment, Variations and Claims
Obligations of the Contractor
Labour, Workmanship and Materials
Guest Speaker
Discussion

Session XIV

Force Majeure and Default
Discussion
Workshop - Case Studies and Analysis

Seminar concludes.

Appendix B

INTERNATIONAL SEMINAR ON LEGAL AND FINANCIAL MATTERS OF TURNKEY TECHNOLOGY TRANSFER CONTRACTS BASED ON FIDIC STANDARDS

9 to 12 September 1991, Bangalore, India

Course Director

Mr K.B. Norris, Lucon, Townsend Road, Streatley, Berkshire RG 8 9LH, U.K.

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PART B - LECTURES

1. INTRODUCTION TO FIDIC

1.1 FIDIC - It's Formation and It's Membership

FIDIC stands for Federation Internationale des Ingenieurs Conseils or, translated into English, the International Federation of Consulting Engineers. FIDIC was founded in 1913, the inaugural meeting taking place in Ghent in Belgium.

Membership of FIDIC is open to all national associations of consulting engineers, subject to FIDIC being satisfied that the constituent firms are independent. National associations where the members are governmental bodies or are subsidiaries of manufacturers or contractors are not eligible for membership of FIDIC. Individuals are not members of FIDIC which is funded by contributions from the Member Associations.

The objectives in forming the Federation were to promote the professional interests of the Member Associations and to disseminate information of interest to members of its component national associations.

Since the inaugural meeting, when only some half a dozen countries signified interest in joining FIDIC, membership has grown; now fifty countries are members of FIDIC. There is a small permanent secretariat in Lausanne, but the bulk of the work done by FIDIC is undertaken by engineers whose time is made available by the member firms of the national associations.

With the ever-growing interest to aid developing and less developed countries, and with the tendency of countries which were formerly not industrialized to see their future supported by industrialization, FIDIC can play an expanding part in the international scene making a major contribution to world development and prosperity. FIDIC is actively working to encourage the development of the profession in countries which are in the process of development and much of the practical help is being provided by Member Associations of the industrialized countries.

1.2 The Ethics and the Professional Codes of Practice of FIDIC

FIDIC's statute include :

(a) Professional Status

In the exercise of his profession a Consulting Engineer must act in the legitimate interest of his client. He must discharge his duties with complete fidelity and conduct himself in such a manner as faithfully to serve the best interests of society and to uphold the standing the reputation of profession.

(b) Independence

A Consulting Engineer's advice, judgement or decision must not be influenced in any way by a connection with another person or organization. Control of the policies and management of a Consulting Engineering firm which is partly or wholly owned by entities other than Consulting Engineers shall be vested in Consulting Engineers.

The remuneration of a Consulting Engineer for professional services should be served only from the fees paid by Clients, with the exception that a Consulting Engineer may nevertheless also benefit from equity participation from ad hoc groups formed with others to undertake design and construct, project management or similar activities.

(c) **Competence**

A Consulting Engineer must have the necessary knowledge and experience to enable him to fulfil his mission.

1.3 The Prerequisites of an Independent Consulting Engineer

A Consulting Engineer is a professional qualified engineer in private practice. He maintains his own engineering office, either alone or in association with other engineers, and employs staff to assist him to provide consultancy services.

A Consulting Engineering firm may be organized as a sole proprietorship, a partnership or a company, depending on the size and type of its operation and the conditions set by the national association.

A Consulting Engineer is able to approach all assignments objectively, and by using sound technical and economic principles, arrives at a solution which serves the best interests of his clients, with due regard to law and the interests of the community. Additionally, he subscribes to FIDIC's guidelines on what constitutes proper conduct for an independent Consulting Engineer.

1.4 The Role of the Consulting Engineer

A full traditional professional service by a Consulting Engineer to a Client for a project comprises three main stages:

- (i) investigation and report
- (ii) design and preparation of contract documents, administration of tendering procedures, evaluation of tenders and recommendations for award
- (iii) supervision of construction, testing and commissioning the Works and resolution of the final account.

In performing services, the principal duty of a Consulting Engineer is to render faithfully those services which are entrusted to him, and the remuneration he receives is solely that paid by his Client.

A Consulting Engineer who undertakes only some of the services comprised in a full professional service, is not in a position to take responsibility for the performance or consequence of those services which are not entrusted to him.

In recent years, some projects, particularly those in the processing industry, have been executed using turnkey or design and construct contracts. Such forms of contract are those where a Contractor, in return for compensation, undertakes all things necessary for the design and construction of Works, from inception to completion, ready for the use of the Owner. Responsibilities for design and construction under Turnkey procedures are located with the Contractor, except for those reserved to the Owner under the Contract between them. This effectively places design initiative and control with the Contractor.

Professional services in connection with Turnkey Projects could be rendered either to the Owner (e.g. preliminary investigations, pre-investment studies, terms of reference for inviting and assessing tenders, checking designs submitted by the Contractor, specialized investigations and reports, etc.) or to the Contractor (e.g. pre-tender investigations and preliminary designs, detail designs, specialized investigations, technical and financial submissions for approval, etc.). Only in rare circumstances would the same Consulting Engineer undertake responsibility to both parties and then it would generally be limited to a particular service agreed between the parties.

1.5 Forms of Contract Prepared by FIDIC

Among the many tasks undertaken by FIDIC is the preparation and publication of standard forms of contract. Of these, by far the best known is the Conditions of Contract for Works of Civil Engineering Construction, often referred to familiarly as the Red Book on account of the colour of its cover.

The First Edition of the Red Book was published in 1957. It followed very closely the form and the wording of Fourth Edition of the Institution of Civil Engineers (of the UK) Conditions of Contract, departing only where it was considered essential because of the international character of the FIDIC document. The Second Edition was issued in July 1969 and differed from the First Edition only by the inclusion of Conditions of Particular Application to Dredging and Reconstruction Work.

The Third Edition of the Red Book appeared in March 1977. It continued to follow generally the previous layout, but with some minor rearrangement of a few of the early clauses and a degree of rewording in a number of places.

In 1983, the Executive Committee of FIDIC decided to put in hand the preparation of a new and updated edition of the Red Book. In the course of the revision, all 72 clauses were altered to some degree, a number fairly substantially. The Fourth Edition was issued in 1987 and was reprinted with editorial amendments in 1988.

The First Edition of the Conditions of Contract for Electrical and Mechanical Works (the Yellow Book) was published in 1963 and the second in 1980. The Third Edition, published in 1987, comprised a major revision of the previous editions in both format and language. The Third Edition of the Yellow Book was reprinted with editorial amendments in 1988.

The last document to be listed in this paper is that relating to the terms of agreement between the Client and the Consulting Engineer. FIDIC published the first such document in the mid 60s. It was entitled the International General Rules for Agreement between Client and Consulting Engineer and became known as IGRA. It was essentially drawn up to cover the work of the Consulting Engineer during the implementation stage of a project. Subsequently, it was decided to prepare a special document covering pre-investment studies. As a basis for this work, a document used by the Asian Development Bank, which was in turn based upon World Bank documents, was used. In parallel, the original document was reviewed and adapted for design and supervision of construction using as a basis the corresponding ACE (UK) document. The two new IGRA documents were issued in 1976.

When dealing with outside bodies, FIDIC encountered differing views on client/consultant relationships. As a consequence, the World Bank and the Inter-American Bank offered their cooperation in reviewing the IGRA documents and the third editions were published in 1979. These revisions were followed in 1980 by another IGRA form for Project Management.

In 1990, FIDIC published an entirely new document: Client/Consultant Model Services Agreement (the White Book) which supersedes all the IGRA forms.

FIDIC has also issued numerous other publications and those which are relevant to this Seminar will be mentioned at the appropriate time in the course.

2. INTERNATIONAL PROCUREMENT

2.1 Introduction

Procurement includes the purchase of goods and services. As the FIDIC standard forms of contract are considered, it is recognized that the civil works conditions ("Red Book"), the conditions for electrical and mechanical works ("Yellow Book") and the conditions for consultant services ("White Book") all involve the acquisition of both goods and services.

The FIDIC forms are, because of their wide application in different countries, essential model forms rather than uniform forms - to be adapted with care to particular projects, or tailored, minimally so as to the general conditions. And the FIDIC forms are concerned with public procurement even more than international procurement, although inclusive of both concepts. In fact, the word "international" has been deleted from the title of the Fourth Edition in recognition of the possibility that the conditions could be used for purely domestic projects as well.

At the outset, aspects of public procurement are considered which are distinct from private purchasing and then move on to particular features found only in international procurement.

2.2 Government Contracts

Legislative and executive roles bodies in useful tension: A part of the concept of the separation and balance of power.

- (a) The government in the marketplace -- another useful tension between the government as an individual, like another party in commerce, as opposed to an expectation of special treatment - "turning square corners when dealing with the government".
- (b) The question of accountability: Purchasing for the long-term, in the public interest.
- (c) Question of authority to enter, and of the particular government official.
- (d) Fairness from the government.
- (e) The government as a contract drafter: "adhesion", not negotiation; statutes and regulations (plus agency discretion, not unlimited; appropriations).

Sovereign immunity : How is it waived ?

- (f) The government in court : suing the "king"
Special permission (Law)
Special courts (Claims courts)
Board procedures and procedural advantages to the sovereign.

Rare use of arbitration in domestic public work because of resistance by government officials to turning over decisional authority to mere laymen rather than keeping fund-impacting decisions.

- (g) Governmental and socio-economic policy implementation: Buying to foster small-business, local suppliers, minority companies, political goals, etc. In India, for example, the Directorate General of Supplies and Disposals favours import substitution and developing indigenous industries, a not unusual policy.

2.3 Procurement Internationally

New considerations :

- (a) Customs duties and distance from sources
- (b) Taxes
- (c) Currency fluctuations and Governmental devaluations
- (d) Federal v. municipal aspects
- (e) Codes and establishing technical requirements
- (f) Force majeure
- (g) Applicable law and establishment of an impartial dispute resolution mechanism: frequent use of arbitration.

2.4 Reconciling World Bank Requirements and Objectives

Enormous bank experience combines with its development objectives. It is, formally, the International Bank for Reconstruction and Development. Countries borrowing from the Bank can expect to obtain advice on the planning of procurements for Bank-financed projects and assistance from consultants on the Bank's project staff for the preparation and administration of engineering and construction contracts.

The "Sample Bidding Documents" of the Bank rely primarily upon the civil works conditions prepared by FIDIC ("Red Book"). A second edition of the Sample Bidding Documents of the World Bank is about to be issued and will be based upon "Red Book 4."

- (a) The need for economy and efficiency in project execution, including procurement of goods and works.
- (b) The Bank's interest as a cooperative institution, in giving all eligible bidders from the developed countries, an opportunity to compete.
- (c) The Bank's interest as a development institution, in encouraging the development of local consultants, contractors and manufacturers in the borrowing country.

A useful tension must be managed between (b) and (c) - that is, the emphasis upon pure efficiency in procurement must be attenuated by the long term objective of fostering the growth and self-sufficiency of local firms. This is also, incidentally, the policy of FIDIC as demonstrated, for example, in its policy on technology transfer.

2.5 The FIDIC Role : Internationalization and Balance

As previously described, FIDIC is comprised of national associations of independent Consulting Engineers; active in its membership are engineers from industrialized and developing countries.

In the process of revising the FIDIC conditions, in the 1980s, the Civil Engineering Contracts Committee conducted an extended dialogue with many experts. Very significantly this included representatives of both funding institutions, who, in effect, spoke for the owners' or employers' interests and of contractors' organizations. Thus pushed from the left and the right, if a political analogy may be indulged, the FIDIC engineers produced improved documents which are generally recognized as balanced and establishing a fair and practical allocation of contract responsibility.

3. TENDERING PROCEDURE, INCLUDING PREQUALIFICATIONS

3.1 Starting at the Beginning

In order to put tendering procedure in perspective, it is worthwhile going back briefly to the beginning of a project and considering how a contract is conceived.

Expressed in simple terms, a government department or a local authority or a public company decides that some form of engineering work is desirable and should be carried out. Although at this formative stage the department, authority or company concerned may be variously referred to as the client or the owner, or the buyer, henceforth it will be referred to as the Employer, as that is the term that will apply when the concept becomes a Contract. The work or project could be a dam, an airport, a power station, a motorway or something comparatively small, such as local water supply installation. The studies and investigations that are normally carried out or how alternatives are evaluated and compared before a conclusion is reached on the project that will best meet the needs of the Employer are not described. Frequently, the Employer retains a consulting engineer to help and advise him in establishing the optimum solution. The consulting engineer at a later stage usually becomes the Engineer under the Contract and again that is the term that will be used henceforth.

When the broad outline of the project have been established, the next step is to determine whether it should all be carried out as one contract or should be divided into a number of separate contracts. At the same time the type or form of contract(s) must be agreed. The Engineer, if called upon to do so by the Employer, will advise on these related matters.

From this point, the procedure to be followed to obtain tenders will be described. This paper and the next is based on the FIDIC publication "Tendering Procedure" published in 1982. With one or two exceptions, which will be identified, this document remains an admirable guide for those seeking to invite tenders and award a contract. If there are several contracts within the one project, a similar procedure should be followed for each, although the timing may not be concurrent depending on the programme for the execution of the work.

3.2 Prequalification

For most major contracts, particularly where firms of different nationalities will be invited to tender and where finance is sought from an International Financing Institution (IFI), such as the World Bank, it is usual to prequalify the tenderers. This process is in the interests of the Employer, as it ensures that only firms of contractors considered competent to carry out the work are invited to tender. It is also in the interests of contractors, as if prequalified they will know that they are competing with other well established firms and do not run the risk of finding that their responsible tender is undercut by a firm lacking the experience required to assess the task involved.

Prequalification takes time and it is wise to put the procedure in hand in parallel with the detailed design of the project. In this way, when the tender documents are ready the list of contractors to whom they are to be issued will have been established.

The first step in prequalification is to place an advertisement in the press inviting firms to notify the Employer of their interest in tendering. The choice of newspapers for the advertisement is important, also the countries if international tenders are to be sought. If a loan is expected from an IFI, the particular requirements of the IFI must be followed and may include the notification of the embassies of

all member countries. Where advertisements are placed in the foreign press, it is necessary to decide whether to use the language of the Employer's country or the intended language of the Contract or the language of the country in which the advertisement is to appear. If translation is involved, it is important that it is carried out not just by a good linguist, but by one who understands engineering terms.

There are two alternative methods of proceeding at this stage. The advertisement may describe the major features of the contract and give details of the information contractors must submit in order that their capability may be considered. Alternatively, if the contract is a large one and involves complicated and sophisticated work, the advertisement may give only brief details and invite those interested to apply for a prequalification document. This document can give far greater detail of the contract than is possible in an advertisement and will often include a few outline drawings, such as a site layout, a cross section, typical details, programme, as well as giving approximate quantities of major items of work, arrangements for financing the contract, currencies of payment and other information.

Whichever course is followed, it is important that applicants for prequalification are clear as to what they are required to provide, so that their applications can be properly and fairly judged. That is one of the reasons why correct translations are so necessary, as mentioned above. If there are particular criteria which will be applied in assessing whether or not applicants are eligible for prequalification, these criteria must be stated in the advertisement or the document. Most IFIs publish guidelines or lay down rules on how prequalification is to be carried out. FIDIC's "Tendering Procedure" includes useful examples of forms that can be used for prequalification and supplies of the proforma can be obtained from FIDIC.

When setting criteria for prequalification, it is prudent to consider whether, collectively, they are so restrictive that too few applicants are likely to be eligible and possibly some of the best may fail on a technicality. Many factors can be used in evaluating the capability of a firm, to mention a few: size and financial strength, previous experience of similar work of like magnitude, experience in the country or part of the world where the Contract is to be executed, present workload and availability of construction plant and experienced staff. The performance in the recent past and availability of experienced staff and other technical personnel are the most important aspects and it will be useful if applicants could provide the names and CVs of a few of those whom they would intend to deploy on the Contract, if successful. However, these points should not be considered to the exclusion of other factors.

Prequalification places great responsibility on those carrying it out. If the Engineer is required to report on the applicants to the Employer, as is usual, and to make recommendations, he would be well advised to avoid passing judgements on matters that are beyond his professional skills. The Engineer is not a lawyer or an accountant and documents such as Articles of Association, Joint Venture Agreements, Annual Accounts should be reviewed by professionals of the appropriate discipline, either retained direct by the Employer or by the Engineer on behalf of the Employer.

It is at the prequalification stage that unsuitable applicants must be rejected. If a firm of questionable capability is inadvertently accepted at that time, it is not easy to recommend against award if its tender later proves to be the lowest and is otherwise acceptable.

Six or eight firms is probably about the best number to prequalify, assuming that at least this number is found capable of executing the work. If there are a lot of capable firms, then the best should be selected. However, it should be noted that some IFIs require all firms that meet the criteria to be prequalified, even if that results in the list containing twenty or thirty or more firms. A long list is in no one's interest, as it reduces each firm's chances of success and may result in many firms not tendering. At the same time, a very short list has dangers, as there is always the possibility of two or more prequalified firms combining in joint venture or of a firm being successful with another tender and so

withdrawing due to the amount of work it has. It is desirable to receive at least three tenders in order to be confident that there has been adequate competition.

3.3 Invitation of Tenders

When the time comes to invite tenders, the documents issued to prequalified firms will usually include: Conditions of Contract, Specification, Drawings and Bill of Quantities. These are the documents mentioned in the Tender form at the end of Part I of the FIDIC Conditions of Contract - the Red Book. But, there will be other documents: the letter of invitation, the Tender form itself and Appendix thereto and information data. The last and its significance in relation to the Contract are set out in Clause 11 of the Red Book. There may also be Addenda, which are a means of notifying all tenderers during the tender period of any change or addition which it is found necessary to make subsequent to the initial invitation. Addenda will, by their nature, be issued after the invitation to tender, but must be issued sufficiently in advance of the date for submission of tenders, for tenderers to have time to take account of the contents.

There is one other document which is most important to tenderers, although it will not form a part of the Contract on award, and that is Instructions to Tenderers. This document will include the information that tenderers need to know in order to be able to submit timely and responsive tenders. It will include such items as time and procedure for submitting tenders, arrangements for Site inspection, details of any information which tenderers are required to submit with tenders, a statement as to whether alternative tenders may be submitted and, if so, on what basis, details of any special factors that will be taken into account in establishing the rating of tenders. This list is only indicative and other items could apply. Again, it is suggested that FIDIC's Tendering Procedure is studied. However, it is emphasized that once more the Instructions to Tenderers will not form a part of the Contract and so, if there are points on which it will be necessary to rely after award, then the Instructions are not the right place for them. They should be included in the Conditions of Contract or one of the other documents listed in the Tender form.

In the time available for this paper, it has been possible only to give a broad outline of Tendering Procedure and inevitably there is much that is mentioned only briefly or not at all. One substantial omission is the time factor for the various stages. That depends on so many features, such as size and location of project, source of funds, availability of Site, that it is considered better not to generalize and, by doing so, possibly mislead. FIDIC's Tendering Procedure provides a more thorough guide to the subject.

Finally, this paper takes matters up to the stage when Tenders are to be submitted and the procedure thereafter is the subject of the next paper.

4. DOCUMENTS FORMING THE CONTRACT AND SUFFICIENCY OF TENDER

4.1 Introduction

The essentials of the contract may, in very abbreviated fashion, be said to boil down to scope and price.

- (a) Scope is set out in specifications and drawings, with provision for changes.
- (b) Price can be set out in various ways and adjustments must be anticipated.

Query : When is the "price" really ascertained and what are the funding implications for the Employer and its lender in this concept ?

4.2 Advantages of Standard Contract Forms

- (a) Familiarity saves time and expense for tenderers, facilitates bidding.
- (b) Standardization protects owners by comprehensive coverage.
- (c) An internationally recognized form such as those of FIDIC, with a balanced allocation of responsibilities will attract bidders.
- (d) Provides a guide for all aspects of contract administration, from commencement to completion.
- (e) Texts and published awards are available to objectively interpret the standard contract clauses. (e.g. The FIDIC Red Book Guide; Yearbooks of International Council on Commercial Arbitration; International Construction Law Review; Hudson's on Building Contracts).

4.3 Forming the Contract

A. Red Book (Art. 1.1(b)(i) thru (viii)):

1. General Conditions
2. Conditions of Particular Application
3. Specification
4. Drawings
5. Bill of Quantities
6. Tender
7. Letter of Acceptance
8. Contract Agreement

B. Yellow Book (Art. 1.1.3):

"Contract" means the agreement between the Employer and the Contractor for the execution of the Works incorporating the Conditions, Specifications, Employer's Drawings and Contractor's Drawings, priced and completed Schedules, Tender, Letter of Acceptance and such further documents as may be expressly incorporated by the Letter of Acceptance.

4.4 "Priority" of Documents

Necessity for priority in the event of inconsistencies between documents (e.g., specifications and drawings).

See Part I, Red Book, Clause 5.2 and Part II, Red Book, Clause 5.2 (Priority of Contract Documents) and two approaches, set out in the example language, to the priority question.

4.5 "Referencing" Documents, Data and Exhibits (Clause 11)

Standard Codes, National and Local

Boring Logs and other subsurface data, including laboratory test results.

Cores, soil samples, etc.

4.6 Sufficiency of Tender

(Red Book, Clause 12.1)

The Contractor shall be deemed to have satisfied himself as to the correctness and sufficiency of the Tender and of the rates and prices stated in the Bill of Quantities, all of which shall, except in so far as it is otherwise provided in the Contract, cover all his obligations under the Contract (including those in respect of the supply of goods, materials, Plant or services or of contingencies for which there is a Provisional Sum) and all matters and things necessary for the proper execution and completion of the Works and the remedying of any defects therein.

(Sufficiency of Contract Price (Yellow Book, Clause 11.2))

The Contractor shall be deemed to have satisfied himself on and taken into account in his Tender :

- (a) all the conditions and circumstances affecting the Contract Price,
- (b) the possibility of carrying out the Works as described in the Contract,
- (c) the general circumstances at the Site (if access has been made available to him) and
- (d) the general labour position at the site.

The contractor shall not be responsible for the accuracy of the information given in writing by the Employer or the Engineer but shall be responsible for his interpretation of information received from whatever source.

- (i) Compliance with the invitation to tender. Specificity as to requirements will facilitate compliance as well as a carefully conducted pre-tender meeting and /or site visit. The pre-tender conference should, of course, be recorded and information furnished subsequently distributed in writing to all potential tenderers whether or not in attendance.
- (ii) Responsibility and responsiveness distinguished: Responsibility relates to the tenderer; responsiveness relates to the tender itself.
- (iii) Pre-qualification procedures, if used, must be fair, not discriminate, and foster, not discourage participation and competition in order to obtain the best price from the most efficient and innovative contractor.

- (iv) Furnishing of tender security: requirements should be specific to preclude disputes and delays.
- (v) Review of tenders; the "qualified" tender.
- (vi) Avoidance of rejection of all bids; delay and timing questions.

4.7 Relationships of the "Sufficiency" Clauses to the "Change of Conditions" or Differing Site Conditions Clauses

Red Book Clause 12.2 (Adverse Physical Obstructions or Conditions); Yellow Book Clauses 11.3 (Physical Obstructions and Conditions) and 26.1(c) (Physical Obstructions or Conditions which could not reasonably have been foreseen by the Contractor).

5. CONTRACT LAW AND THE LEGAL FRAMEWORK

5.1 Introduction

To remind of a few principles of contract law :

- (a) A contract rests on agreement (*pacta sunt servanda*) - the civil law emphasis.
- (b) A contract is a promise supported by consideration - the common law emphasis.

5.2 Applications to Public Procurement

New dimensions are added, namely, the protection of the public interest (the tax payer) and the question of who can commit a public entity, that is, who has the authority to execute contracts for the national government or even a local school board. In turn, the obvious need for proper delegation of authority to handle many contracts must be met by regulation as to the permissible extent of delegation.

5.3 Legal Framework

The legal framework is, in a formal contract, usually established by the parties. This is contemplated in the FIDIC forms by Clause 5.1 of the Red Book, providing that the law shall be stated in Part II, and by Clause 51 of the Yellow Book.

However, there are limitations to the concept of party autonomy - local law may prevail over certain terms agreed to by the parties. Conversely, it may also happen, infrequently that the parties will select the applicable law after entering into their contract. More likely, if the law had not been agreed and a dispute arose, one of the parties would resort to litigation and a judge would decide, using "conflict of laws" rules, on the governing legal system. The effect, of course, would be retroactive.

Additionally, the impact of custom in an industry on contract clauses and their interpretation may be considerable. This may be referenced specifically in a contract (e.g. the Red Book provision for recognition of local customs) or may be implicit.

The ultimate interpreter of contract provisions may be an arbitration tribunal. Hence, the selection of that tribunal is extremely important both as to relevant skills to be sought for the panel (e.g. engineering, accounting, law) and the nationality of the panel members (e.g. party selection, neutrals, etc.). It is certainly arguable that the salutary effect of suing international forms of contract and using international arbitration tribunals will be to "transnationalize" the law of construction and engineering contracts, i.e. eliminate local or national legal peculiarities, with the likely benefit of bringing some degree certitude to international competitive bidding. It is recognized that the growth of international trade over the centuries has led to an international law merchant. Construction law can be expected to similarly develop, blurring what distinctions may exist between, for e.g., common law and civil law jurisdictions.

It is important, in the context of examining the legal framework, to be aware of the implications of selecting a particular institution for administration of arbitration and selecting a particular set of rules. The UNCITRAL Rules (United Nations Commission on International Trade Law), to be discussed in more detail later, provide at Article 33 that custom shall be taken into account in deciding cases, an important clause which can be readily overlooked at the time of contract formation.

In addition to the provisions at Clause 5 which set forth the country or state the law which shall apply, Clause 26 should be noted. It is there provided that notices and fees to comply with all statutes, regulations, local bye-laws, etc., are the responsibility of the Contractor, except for zoning permission.

5.4 Types of Contracts

A. Classified by services or object provided

(a) Consulting services : Generalized, brief contract; therefore, heavy reliance upon the reputation, experience and judgement of the contractor.

- Project conceptualization and feasibility, economic assessment
- Design and surveying
- Bidding procedures and prequalification
- Contract administration and claims management; scheduling
- Inspection of work
- Testing; acceptance
- Manual preparation, training

(b) Construction contracts : Detailed tender documents, voluminous, with drawings and specifications. Little reliance on judgement, more on the management skill of the contractor to implement what the engineer has designed.

The test questions in allocating risk: which contractual party can better evaluate the likelihood of the risk event ? Which party can better control and reduce the damage which follows if the risk event actually occurs ?

Basic contract provisions :

Scope of Work : When scope is defined with greater precision, there will be reduced guessing and gambling by the contractors, more competition and lower tenders.

Provide for changes, for flexibility.

Time adjustments

Price

Adjusting for changes and for changed conditions. Both contractual parties are affected : concept of reciprocity. Labour, funding, inflation adjustment.

Other

Insurance, banking

Socio-economic, designated subcontractors, local import (law preferences).

B. Contracts Considered as to Contractor Selection and as to Method of Payment

(a) Selection of Contractor :

Openness -- avoidance of manipulation, "steering"

Competition -- tied or not

Local preference -- small business

Cost effectiveness --

Process

Sealed bid or "forming advertising" v. negotiated procurement

Advantages and disadvantages; subjectivity and objectivity

Comprise : prequalification of proposers and tenders

Procure quality, how ?

Selection and contract type are marginal in effect. The key is quality design plus close inspection, acceptance and warranty procedures. Notice, e.g., that quality and quantity requirements are distinct from source selection. Usually a remedy opportunity, or cure period is afforded; compare the international civil works language with the American Federal Acquisition Regulation (at 52.2) in this respect.

(b) Method of Payment :

Two basic types

(i) Fixed price ("lump sum" or "hard money") unit prices, mobilization payments, provisional sums, alternatives, combined pricing. Requires definitized plans and specifications. Advantages of certitude to the owning agency; places risk of cost overrun on the contractor, gives incentive.

(ii) Cost type : Reimbursable cost type: define the cost and the fee (profit) plus fixed fee.

Percentage of cost - No. This actually gives an incentive to the contractor to allow costs to rise.

Incentive fee

Advantage to the owning agency is that it allows work to proceed while design still underway.

6. ROLE AND DUTIES OF THE ENGINEER

6.1 The Consultant and His Agreement with His Client

FIDIC Conditions of Contract for Works of Civil Engineering Construction (the Red Book) and FIDIC Conditions of Contract for Electrical and Mechanical Works (the Yellow Book) are based upon the concept of an independent Engineer, sometimes an individual but more often a firm. The Red and Yellow Books are really not written for the case where the Employer appoints one of his own employees as Engineer. In such circumstances, it is likely that some fairly radical changes might have to be made in order to maintain a reasonable balance between the two parties to the Contract - the Employer and the Contractor. The extent of the changes would depend upon the terms of reference of the employee appointed and the ability of the individual to stand by his own conclusions.

Where the Red and Yellow Books are used in the manner intended, the Employer will select and appoint the Engineer, usually from among the member firms of the FIDIC National Associations. The appointment will generally be made in accordance with the Client/Consultant Model Services Agreement (the White Book) produced and issued by FIDIC. (The White Book will be studied in depth in later papers.) A point to note is that in this Agreement the two parties are designated the Client and Consultant. The equivalent expressions used to identify the same persons in the Red and Yellow Books are Employer and Engineer.

The Agreement entered into between the Client and the Consultant could equally well be referred to as a contract, which is what it is. Fortunately, the latter term is not used to describe the Client/Consultant document, so that it is unlikely to be confused with the Red and Yellow Books from which it is quite distinct. The Agreement includes clauses covering all matters that normally have to be recorded when two parties enter into a business relationship, in particular terms of payment by the Client and scope of services to be provided by the Consultant. It is the latter provision that has particular significance with regard to this paper.

The scope of services will not only define what the Consultant is to do, but also the extent to which or the circumstances in which he is required to obtain the approval of the Client before taking action. Any limitations or restrictions of this sort may have a bearing on the actions of the Consultant when carrying out his duties as Engineer under the Red and Yellow Books and it is a point to which further reference will be made later in this paper.

6.2 The Engineer Under the Contract

Throughout the rest of this paper, all references are to the Red Book. The provisions of the Yellow Book are broadly similar, but the clause numbers are not identical and there are a number of differences in detail. Those using or intending to use the Yellow Book should bear this point in mind and check the precise wording of that Book in relation to the subject matter which follows before making assumptions.

In the Red Book, the Engineer is defined in Sub-Clause 1.1(a)(iv). Those familiar with the previous edition will note in the Fourth Edition that the appointment is no longer qualified by "from time to time". The name of the Engineer will be included in Part II of the Conditions at tender stage and if the Employer subsequently contemplates appointing a different Engineer he would have to discuss his intentions with the Contractor and could not take a unilateral decision. This change is significant as the Contract when tendering may have attached some importance to the reputation and known experience of the appointed Engineer.

Sub-Clause 2.1 states in paragraph (a) that the Engineer shall carry out the duties specified in the Contract and in paragraph (b) that the Engineer may exercise the authority specified in or necessarily to be implied from the Contract. The parties to the Contract are the Employer and the Contractor. The Engineer is not a signatory, but it can be construed that the Employer, in signing the Contract, has granted power of attorney to the Engineer to exercise the authority given under the Contract. Equally in signing the Contract, the Contractor recognizes that the Engineer has duties and authority

While this explanation of the contractual relationships may be helpful to those attending the seminar, particularly to any unfamiliar with the role of the independent Engineer, it should not be assumed to give a complete description or a full legal definition. To do so would take time that is better devoted to dealing with the practical implications in the context of the Red Book.

Reverting to paragraph (b) of Sub-Clause 2.1 and the exercise by the Engineer of authority, there is a proviso that if the engineer is required, under the terms of his appointment by the Employer (in other words under the Agreement mentioned above), to obtain specific approval the particulars shall be set out in Part II. This obligation is important. If it is not observed and it later becomes known to the Contractor that the Engineer is seeking instructions from the Employer on matters not identified in Part II, the Contractor would have grounds for complaint and could possibly sustain an argument of improper behaviour.

There is a second proviso in paragraph (b) that any requisite approval shall be deemed to have been given by the Employer for any such authority exercised (i.e. any authority identified in Part II as requiring Employer approval). So, if the Engineer exercises authority which requires approval, the Contractor can proceed without questioning the validity. If it transpires that the Engineer did not have approval and the Employer is unwilling to grant retrospective approval, the Contractor will still be entitled to payment in accordance with the Contract and any differences between the Employer and the Engineer will have to be settled between them in the terms of the Agreement.

6.3 The Engineer's Representative and Assistants of the Engineer

On most projects, certainly all major ones, the Engineer will not reside on Site, but will appoint an Engineer's Representative (ER) to whom he will delegate certain duties and authority (see Sub-Clause 2.2). In the Fourth Edition of the Red Book, unlike the third, the ER is not mentioned after Clause 2 (other than in a couple of places for procedural reasons) and is entirely dependent on the letter of delegation to carry out his tasks. To have effect this letter must be copied to the Employer and the Contractor.

Sub-Clause 2.4, a new Sub-Clause, deals with the appointment of persons to assist the ER and how their duties and authority are established. Sub-Clause 37.5, also new, states that an independent inspector for inspection and testing is to be considered as an assistant of the Engineer and is to be subject to Sub-Clause 2.4.

6.4 The Engineer to be Impartial

The impartiality of the Engineer in exercising his discretion is the subject of Sub-Clause 2.6. The Sub-Clause is new, but the principle is not. However, as instances have occasionally arisen where misunderstandings have occurred, the Engineer's obligation to act impartially in many matters is now set out in the Conditions

In over a dozen places in the Conditions words have been introduced requiring that the Engineer shall only make his determination after due consultation with the Employer and the Contractor. The first such reference is in Sub-Clause 6.4. The words may be new, but the procedure was often followed in the past and it could be argued that it was implied. Questions will inevitably be asked as to what may be inferred from the word "due". It is not defined and, if some interpretation is called for, possibly "appropriate in the circumstances" is the best approximation. No time limit or time scale is given and again that is intentional. So much depends upon the situation that gives rise to the obligation to duly consult and upon the availability of the parties in relation to the progress of the Works.

6.5 The Engineer and the Contractor

Earlier in the paper, it is brought out that although there is a contract between the Employer and the Contractor (the Contract) and between the Employer and the Engineer (the Agreement), there is no contract between the Engineer and the Contractor. Thus the question arises as to what channels are open to the Contractor if he disagrees with the Engineer. In most cases he would have no alternative other than to comply with the Engineer's instructions, but if the differences persisted he could ask for an Engineer's decision under Clause 67. If he did not accept the decision he could, after an attempt to settle amicably, proceed to arbitration. It should be noted that although Clause 67 refers to disputes between the Employer and the Contractor, it includes any dispute as to any opinion, instruction, determination, certificate or valuation of the Engineer. In the event that the Contractor considered that the Engineer's behaviour amounted to neglect of professional duties, the Contractor could consider proceeding against the Engineer in tort. However, this last solution would be most unusual and one would hope that it would not arise.

6.6 The Engineer and Management

Apart from the strictly contractual or legal responsibilities described above, the role of the Engineer also embraces the traditional function of endeavouring to achieve the successful completion of the project. It is not only the need to ensure the technical acceptability of the work, but timely completion within the estimate. This role is sometimes today described as project management, but it is not a new concept and is implicit in the appointment of the Consultant, that is unless the scope of his services is restricted in the Agreement. Unfortunately, that is sometimes the case today. Otherwise the Engineer will find the Fourth Edition a useful means for management, imposing as it does procedures for dealing expeditiously with claims, extensions of time and new rates and prices, measurement and agreement of the final account, as well as the basic and generally predominant aim of facilitating the completion of a project in accordance with the Contract and to the satisfaction of both parties.

7. FORM OF CONTRACT AND DEFINITIONS

7.1 Form of Contract

Before proceeding to consider the Conditions of Contract in detail and to review the intent and operation of specific Clauses, which will be done in later papers, it is useful to examine first the Red Book as a whole in order to understand its purpose and use. In this context, included are all the material within the two volumes incorporated in the Red Book Folder. References to other constituent parts of a contract will be made only in passing.

"Form" includes two specific aspects: the structure of the Contract and the type of the Contract.

7.2 The Structure of the Contract

The two volumes in the Red Book folder are entitled :

- * Part I General Conditions with Forms of Tender and Agreement
- * Part II Conditions of Particular Application with Guidelines for Preparation of Part II Clauses

The Conditions of Contract are intended to cover the formal arrangements which will govern the relationship between the parties. They are somewhat legal in character, as in the event of a difference of opinion arising, it is to the Conditions that the parties will turn to establish their rights and obligations. When preparing the Fourth Edition, considerable efforts were made to use language which would be readily understood by those using the document, but in order to have force and to be unambiguous, it was necessary to retain a fairly precise style of writing.

The Conditions in Part I are those which have general application and should be capable of use with little if any alteration regardless of the type of work or the location of the Contract. Part II is intended to allow for special clauses necessitated by the particular features of each individual Contract. Part II Clauses may amplify Part I Clauses or, in certain circumstances, amend or even delete Part I Clauses. The use of Part II forms the subject of a later paper and will not be detailed here.

But, there are other documents bound in with Part I, namely a form of Tender and a form of Agreement. The form of Tender is for use by the Tenderer when submitting his offer. It will be seen that in the first paragraph are listed all the documents which will form part of the Contract on award. Naturally, the list includes the Conditions of Contract. Those concerned with the submission of Tenders should note that if there are other documents on which they want to rely, it is not sufficient merely to refer to them in covering letter, but some reference either to the other documents themselves or to the covering letter must be made on the form of Tender. If that were not done, the Employer could accept the Tender and ignore the covering letter.

The second paragraph of the form of Tender states that the Appendix forms part of the Tender. The form of Appendix follows on the next page. With one specified exception, all details must be inserted before the documents are issued to Tenderers. Going through the items and referring back to the relevant Condition's, it will be seen that where a Condition depends upon an entry in the Appendix, there is an appropriate cross reference.

In the sense that the Appendix to Tender amplifies and complements the Conditions, the point is sometimes raised as to what was the basis for deciding whether the material should be included in the Appendix or in Part II Conditions. There is no conclusive answer except that the custom of having an Appendix to Tender is of long Standing, whereas Part II is a newer concept. If one traces back through past documents, it appears that Part II came into being when the additional material became so extensive that it could no longer be conveniently set out in the Appendix. So today, the principle is that where only the additional of a numerical figure is required, it is matter for the Appendix, but where descriptive material necessary, it is accommodated in Part II.

The other document included is the form of Agreement. It is set out in printed form so that Tenderers are aware when tendering of the form of Agreement they will be required to enter into if successful and the Employer so requires.

For a similar reason, Part II makes provision for the inclusion in the tender documents of the form of security which the Employer will require from the successful Tenderer after award of Contract.

7.3 Type of Contract

The Red Book is a remeasurement form or type of Contract. It is not, as it is written, suitable for a lump sum, target price, fixed price, design and build or any of the other multitudinous forms of contract in use in various places. With careful amendment and subject to the draftsman having adequate experience, it would be possible to adapt the Red Book for other types of contract. However, it is not a task which should be undertaken lightly and will be referred in a later paper to FIDIC's plans to produce a new form for Design and Build.

A remeasurement type of Contract is based upon a Bill of Quantities prepared prior to issue of documents to tenderers for them to price and total in arriving at their tender sum. As the work is executed the items are remeasured to give the actual quantities of the work done which are used in arriving at the total due to the Contractor.

7.4 Definitions - Clause 1

Most of the definitions in the Red Book, or defined terms as they are sometimes called, are listed in Clause 1. Those which are not will be referred to later in this paper.

The definitions in Clause 1 are not in alphabetical order. The list is not an index, but is part of the educative process to help the reader understand the document, hence the grouping of definitions.

Sub para 1.1(a)

The five definitions given under this sub-para are all persons. From Sub-Clause 1.3, it will be noted that the word persons is held to include firms and corporations and any organization having legal capacity. Attention is drawn particularly to the definition of the "Engineer" in (iv). In contrast to some other forms of contract (and indeed the Third Edition of the Red Book), there is no provision for the Employer to change the Engineer. If circumstances arise which, in the opinion of Employer, make it necessary or desirable for him to change the Engineer, he would be obliged to discuss his intentions with the Contractor.

Sub para 1.1(b)

This group of eight definitions all relate to documents. Note from the first item (i) which lists the documents comprising the Contract that there is provision for further documents to be incorporated, in

addition to those defined in the subsequent items. Note also that although "Appendix to Tender" is defined, item (viii), it is not mentioned under "Contract". The reason is, as discussed above, that the form of Tender makes clear that the Appendix forms a part of it.

Sub para 1.1(c)

There are only two items in this group. Both relate to time and in effect refer to when the Contractor becomes entitled to start the work and when he is required to complete it. Commencement and completion form the subjects for two later separate papers.

Sub para 1.1(d)

Again there are only two items in the group, but both merit comment. The introduction of "Tests and Completion" as a defined term is new. It will be noted from Sub-Clause 48.1 that the Works must have satisfactorily passed any Tests on Completion prescribed by the Contract before the Contractor is entitled to request a Taking-Over Certificate. This obligation is not a new concept, but the term Tests on Completion helps to formalize what was often in the past a somewhat indefinite position. It is important that the tests are properly prescribed, normally in the Specification, so that the Contractor is aware of his obligations and can allow for the costs and the time required when preparing his tender.

The term "Taking-Over Certificate" replaces "Certificate of Completion" which was used in earlier editions of the Red Book. The new term is more descriptive of the actual situation as on the due date the Employer takes over responsibility for the care of the Works. At that time the Works may not be one hundred percent complete and often the Certificate of Completion indicate only that the works were substantially complete which could lead to misunderstandings and arguments. The sequence of events which can lead to this situation will be apparent when Clause 48 is examined.

Sub para 1.1(e)

The two items in this group relate to money matters. The definition of "Contract Price" has changed from that given in previous editions of the Red Book. It is now the sum stated in the Letter of Acceptance, but it should be noted that it is not necessarily the sum the Contractor will receive. That amount will vary in accordance with the provisions of the Contract which allow for additions and deductions on account of variations or other circumstances.

Sub para 1.1(f)

This group contains the items which cover the physical aspects of the Contract. There are two notable differences from previous editions of the Red Book. The first is the introduction of "Plant" in the sense of machinery and other similar items which the Contractor will have to provide and build into the Works. It has been recognized that most civil engineering contracts include plant items and that they are of sufficient importance to designate them as such.

The other item to note is "Contractor's Equipment". It is the equivalent of "Constructional Plant" in earlier editions of the Red Book.

Attention is drawn to one further point, that materials is not a defined term. Its status is much the same as Plant, but in civil engineering it is too important an input to allow it to be submerged under the heading of Plant. It is mentioned in item (v) and in many other places in the Conditions and should not be overlooked despite the fact that it is not defined.

Sub para 1.1(g)

Here, there are four items, all very different and the other reason for grouping them together is that, unlike all other defined terms, the first letter is not capitalized. It is conventional for the first letter of defined terms to be capitalized, but the omission of capitals does not in any way affect their application or meaning.

7.5 Other Definitions

There are a number of terms which are defined elsewhere in the Conditions than in Clause 1. The original reason for doing so was in order that the definitions should occur in the place in the Conditions where they had particular application. "Defects Liability Period" in Clause 49 is a case in point, although use of the term is not limited to Clause 49. In earlier editions the term "Period of Maintenance" was used. The latter expression sometimes led to misunderstandings, as it was occasionally argued that maintenance implied operational maintenance. Such argument should not be sustained, but the new term is more descriptive of what is involved.

In Sub-Clause 52.3, "Effective Contract Price" is introduced in order to simplify the wording of what is an involved matter. It is helpful in that context, but it does not have wide application.

"Provisional Sum" is established in Sub-Clause 58.1 and "nominated Subcontractors" in Sub-Clause 59.1. The word "nominated" is another instance where the first letter is not capitalized. Again, the use of these terms is limited.

A further instance is in Sub-Clause 60.8 where "Final Statement" is defined. This is another instance where a definition is given in order to simplify the language.

At the time of drafting the Fourth Edition of the Red Book, the Yellow Book was also under review and efforts were made to establish some consistency in definitions between them. This very worthy objective was not entirely successful, but nonetheless it will become apparent when Yellow Book definitions are discussed in a later paper that there is more consistency than there was in the past

8. GENERAL OBLIGATIONS OF THE CONTRACTOR

8.1 Introduction

Clause 8 of the Civil Works Conditions (the Red Book) sets out the overall obligations of the Contractor in quite generalized terms - to do the work in accordance with the contract.

Contractor's General Responsibilities

Clause 8.1 The Contractor shall, with due care and diligence, design (to the extent provided for by the Contract), execute and complete the Works and remedy any defects therein in accordance with the provisions of the Contract. The Contractor shall provide all superintendence, labour, materials, Plant, Contractor's Equipment and all other things, whether of a temporary or permanent nature, required in and for such design, execution, completion and remedying of any defects, so far as the necessity for providing the same is specified in or is reasonably to be inferred from the Contract.

Site Operations and Methods of Construction

Clause 8.2 The Contractor shall take full responsibility for the adequacy, stability and safety of all Site operations and methods of construction. Provided that the Contractor shall not be responsible (except as stated hereunder or as may be otherwise agreed) for the design or specification of Permanent Works, or for the design or specification of any Temporary Works not prepared by the Contractor. Where the Contract expressly provides that part of the Permanent Works shall be designed by the Contractor, he shall be fully responsible for that part of such Works, notwithstanding any approval by the Engineer.

It is perhaps misleading emphasis that the word "design" occurs at the very beginning of this Clause because, in the traditional way in which civil works have been constructed, design is usually carried out by the Engineer, not the Contractor. The qualifying parenthetical language, "to the extent provided for by the Contract", of course immediately qualifies and limits the word "design".

Basically, this Clause says it all - the Contractor's performance, at the risk to him of costs greater than he had estimated when he prepared his Tender, is governed by what is in, or reasonably inferable from, the Contract, not more and not less. Somewhat to the same effect, it should be noted, is the language of Clause 13:

Work to be in Accordance with Contract

Clause 13.1 Unless it is legally or physically impossible, the Contractor shall execute and complete the Works and remedy any defects therein in strict accordance with the Contract to the satisfaction of the Engineer. The Contractor shall comply with and adhere strictly to the Engineer's instructions on any matter, whether mentioned in the Contract or not, touching or concerning the Works. The Contractor shall take instructions only from the Engineer or, subject to the provisions of Clause 2, from the Engineer's Representative

Examining these two Clauses, however generalized, together is a valuable exercise because they embody certain principles which underlie the scheme of the FIDIC General Conditions.

Method is a key responsibility of the Contractor and also his opportunity. It is, perhaps, because of an innovative method, planned by him for the performing of the works, that the Contractor was the lowest Tenderer and has the opportunity of making a substantial profit. The Employer benefits from that

anticipated, innovative method which resulted in a price lower than other tenderers. The method used must of course give the Employer the Works designed and the implementation of the method is the challenge to the Contractor to efficiently manage, at his risk, the manpower, equipment and materials for the project.

The satisfaction of the contract requirements, Clause 13 points out is a determination to be made by the Engineer impartially (Clause 2.6), as has been discussed. The final sentence of Clause 13.1, as to where the Contractor receives instructions, is more than a procedural routing of the mail, so to speak. It establishes the unique role of the Engineer under this contract form - that is, an entity not a party to the contract, will, in effect, instruct the Contractor as to the Contract! This Clause protects the Contractor from taking direction from two sources and from an Employer who, because he is the entity with the money, might otherwise have the whip hand.

8.2 Reciprocal Nature of the Contractual Obligations

As it happens, there is no Clause which would neatly balance the language "Obligations of the Contractor" by being labelled, "Obligations of the Employer". Since the contract is one by which the Employer is a purchaser of Works, we could briefly and correctly say that the general obligation of the Employer is to pay, timely (Clause 60). This is true enough, but there is more.

The Employer must also facilitate the performance of the work by the Contractor in various ways. For example, he gives the site of the work itself to the Contractor and access to the Site (Clause 42) in a timely fashion, that is, in accordance with the programme of the Contractor (submitted pursuant to Clause 14).

8.3 Pre-tender Site Inspection by Contractor and Payment for Unforeseen Condition (Clauses 11 and 12)

For the Employer to obtain the most construction for the money, the Contractor must have tendered an informed bid. In other words, competition will be increased, and more tenders received, when the obligations and the work are defined with as much precision as possible, that is with the uncertainty and gamble reduced.

With this in mind, Clauses 11 and 12 must be read together. Clause 11, in a sense, is a warning, an educative provision. It tells the Employer that he must fully disclose what he has learnt about the site during the explorations of it and during the design; it also includes the caveat that while all the raw data is available - the boring logs, etc. - interpretation of that data is the responsibility of the Contractor.

In a complementary way, Clause 12, in a sense, is an assurance to the Contractor that, if the physical conditions actually encountered by him in the performance of the work were not foreseeable at the time of the tender, then he will receive extra compensation. In short, his tender price is expected to be based upon the site conditions as evaluated by him from his Clause 11 inspection and review of data furnished and is not expected to include additional amounts to provide for and protect against the possibility of encountering worse conditions than the tender documents would lead "an experienced contractor" to expect.

This sort of a clause is needed because of the uncertainties intrinsic in civil work, remembering that the subsoil frequently is part of the structure, the Works to be produced. While the planning for the concrete and steel that will go into a project and measure their cost and availability is possible, it is not always possible to estimate with precision, where the rock, soil and water will be found and with what qualities or volume.

9. COMMENCEMENT

9.1 Coming into Force of Contract

The Contract comes into force with the issue by the Employer of the Letter of Acceptance and the Tenderer's acknowledgement of receipt and agreement to the terms. The Letter of Acceptance is a defined term (see Sub-Clause 1.1(b)(vi) of Part I of the Conditions of Contract for Works of Civil Engineering Construction (the Red Book)). It is always prudent to require an acknowledgement to such an important letter. In the ideal situation, where the Tender is accepted precisely as submitted, the Tenderer does not have to agree with the Letter of Acceptance. Indeed, he is bound to accept it and a binding contract becomes effective immediately (see paragraph 5 of the Tender form at the back of Part I of the Red Book). However, on many contracts letters of clarification will have passed between the Employer and the Tenderer, or meetings will have been held between them, so that the Letter of Acceptance is in reality a counter-offer, to which the Tenderer must confirm his agreement in order to constitute a contract. Thereafter, the Tenderer becomes the Contractor, which is the term used in the rest of this paper.

9.2 Commencement Date

As soon as the Contract is in force, one of the first steps is to establish the Commencement Date, a defined term (see Sub-Clause 1.1(c)(i)). That date is established, not by the Employer issuing to the Contractor a notice to commence the Works (see Clause 41). Although in many cases this notice will be issued by the Engineer as soon as the Contractor has received and acknowledged the Letter of Acceptance, there are occasions when, due to the Site not being immediately available or the Employer having certain procedural steps to take in relation to Government or an International Financial Institution, the Engineer may be required to delay the issue of a notice. The Contractor, however, knows when he tenders the permitted extent of any delay, as the time within which the notice must be issued will have been stated in the Appendix to Tender.

In the Fourth Edition, there is no period for commencement, as in the Third Edition. The Contractor's obligation is now to commence as soon as is reasonably possible (see Clause 41.). The reason for the change is that what constitutes commencement could, in itself, become a subject of dispute. With the establishment of the Commencement date, the important factor for the Employer as well as for the Contractor is that the latter has an obligation to complete within the time stated in the Appendix to Tender (see Clause 43). Subject to any particular requirements stated in the Contract, the arrangements and the programme for executing the Works are the responsibility of the Contractor. It is not unusual for certain requirements to be given in order to ensure that one or more sections will be completed in advance of the whole of the Works (again see Clause 43) so that progress is coordinated with the work of other contractors on the Site or to meet specific needs of the Employer.

9.3 Points Requiring Early Action by the Engineer

At an early stage in the Contract, there are other matters that require action by the Engineer. He should write to the Contractor notifying him of the name of the appointed Engineer's Representative (ER) (see Sub-Clause 2.2). The Engineer should also send a letter of delegation to the ER (see Sub-Clause 2.3). In the Fourth Edition of the Red Book, unlike the Third, the ER has no duties or authority under the Contract until a letter of delegation, copied to the Employer and the Contractor, has been issued. (After Clause 2, the ER is not mentioned in the Conditions other than in a couple of places which are of a procedural nature). The extent of the delegation will depend upon a number of factors, such

as the distance of the Site, from the Engineer's head office, the complexity of the Works, the experience of the ER. It is important that the ER is in a position to act where necessary to avoid delays and on an international contract he will usually be given considerable authority. Yet, the Engineer will not normally delegate all his authority; in fact it would be exceptional for him to delegate his authority under Clause 67 for example. The Engineer should also provide the Contractor with the address to which letters for the ER should be sent.

9.4 Points Requiring Early Action by the Contractor

With the start of the Contract, the Contractor has great responsibilities for planning and mobilization. However, he has certain obligations under the Conditions of Contract which have to be executed at an early stage, some within a specified time, and the Engineer will often write reminding the Contractor and stating any particular aspects which the Contractor should bear in mind. The following are examples :

Clause 9 - Contract Agreement

If the Employer requires the execution of a Contract Agreement, the Engineer should inform the Contractor for the timing and other arrangements for signature.

Clause 10 - Performance Security

In most Contracts, a performance security will be required and in that case the appropriate entry will have been made in Part II and the form of the security will have been annexed to the Conditions at tender stage. The time limit for the Contractor to provide the security is 28 days from receipt of the Letter of Acceptance. The provision is not dependent upon the issue of a notice to commence and the Engineer would be well advised to remind the Contractor of his obligations. Note that under the Fourth Edition, the Contractor provides the security direct to the Employer and advises the Engineer when he does so.

Clause 14 - Programme and Cash Flow Estimate

The time for submission of both these items will have been stated in Part II. Sub Clauses 14.1 and 14.3 are two of the places where entries must be made in Part II for the Contract to be complete (see Introduction to Part II sub-paragraph (i)). It is helpful if the Engineer informs the Contractor soon after the award of any particular form and detail required, so that the Contractor can take the requirements into account from the start. The requirements must be reasonable. The programme, subject to any specific limitation stated in the Specification or elsewhere in the Contract, is for the Contractor to decide and the Engineer should be constructive in any points he makes and only raise objections if it appears to him that the Contractor has failed to assess properly the work involved. Note that in the Fourth Edition, the programme is submitted for the consent of the Engineer, not his approval; a small change, but one which serves to reinforce the principle that it is the Contractor who is responsible for programming.

The general description of the arrangements and method which the Contractor proposes to adopt are submitted to the Engineer only for information. That does not imply that the Engineer need not respond at all on receipt of the details. If the Contractor's submission is not clear or if the Engineer believes the Contractor's arrangements are inadequate or will result in a breach of the Specification, the Engineer should inform the Contractor. It is then for the Contractor to explain or to provide additional or alternative details. The arrangements and method for executing the Works are matters for the Contractor and the Engineer should only interfere in the most exceptional circumstances.

Clause 15 - Contractor's Superintendence

Unless the Contractor is in a position to devote all his time to the superintendence of the Works, which is most unlikely as the Contractor will have other contracts, he is required to appoint a representative authorized to act on his behalf. Before this representative can take up this appointment, the approval of the Engineer is necessary. As the Engineer will probably wish to study the CV of the person proposed, he should remind the Contractor at an early stage, so that the status of the representative is established before work starts.

Clauses 20-25 - Insurance

The Contractor's obligation for arranging insurance are set out in Sub-Clauses 21.1, 21.2, 23.1 and 24.2. The Fourth Edition prescribes that the general terms of the policies will have been agreed prior to award (see Sub-Clause 25.1). Despite that, there may be points of detail to settle before the terms of the policies are acceptable to the Employer. The Engineer should remind the Contractor of his obligation to provide evidence, by means of a cover note or similar document, that insurances have been affected before starting work on Site and to provide the policies within 84 days of award. As in the case of the performance security mentioned above, the Contractor provides the evidence and policy direct to the Employer and advises the Engineer when he does so.

9.5 Arrangements for Management

Before going on to refer to other Clauses which require action in the early stages of the Contract, it is useful to remember the need for the Engineer and the Contractor to establish effective arrangements for the management of the Contract. The Conditions cover the basic obligations, but it remains necessary for those involved to meet and discuss the practical steps that must be taken. For example, the extent of the involvement of the Contractor's head office and how much will be directed and organized on Site. Often, most of the initial work will be done in the head office and the focus will progressively move to Site as personnel and equipment arrive. The Engineer will generally try to match with his own staffing and administrative arrangements the intentions of the Contractor, so that the exchange of letters, drawings and data proceeds easily and quickly.

9.6 Other Points Requiring Action

Clause 42 - Possession of Site

Unless the Employer is in some way restricted in what he can make available, it is normally best if possession of the whole of the Site is given to the Contractor as soon as possible. As the Clause indicates, at least a part of the Site and access thereto must be given when the notice to commence is issued. If the Site is to be handed over progressively the Engineer must study the Contractor's programme and ensure that his operations are not restricted.

Clause 17 - Setting Out

The Clause requires that the Engineer provides the Contractor in writing with the data the latter needs to set out the Works. The Contractor should be provided, as a minimum, with a point, a bearing and a level. On most Contracts that is all the Contractor needs and it is usually better if the Engineer does not provide additional and unnecessary data with the risk of misunderstanding and inconsistency that might occur.

Sub Clause 2.4 - Appointment of Assistants

This Sub-Clause is new. Although it is customary on most Sites for the ER to have assistants, sometimes a considerable number, there was previously no reference to them in Conditions. Now not only is the entitlement of the Engineer or the ER to appoint assistants stated, but if assistants are appointed the Contractor must be informed of the names, duties and extent of authority. The entitlement and the requirement to inform the Contractor apply equally to an independent inspector for inspection and testing (see Sub-Clause 37.5).

There are a number of places in the Conditions, such as in Sub-Clauses 6.3, 7.1 and 7.2, which provide that the Contractor or the Engineer may or shall inform the other regarding drawings and instructions required or to be issued.

Another important matter that needs to be placed on a proper and effective footing in good time is the arrangements for payments. Sub Clause 57.2 requires the Contractor to submit for the Engineer's approval breakdowns for all lump sum items in the Bill of Quantities. This is another new Sub-Clause and it should be noted that the breakdowns are for the purposes of statements submitted under Sub-Clause 60.1. The breakdowns are not intended for reference in the event, at a later date, of variations, but nonetheless it is in everyone's interest that they are realistic.

Clause 60 which deals with certification and payments should be studied so that the procedure is fully understood. It is a subject that can usefully be discussed between the Engineer and the Contractor well before the submission of statements is imminent. Sub-Clause 60.1 requires that the Engineer prescribes the form of statement he expects. The Engineer should be reasonable in determining what he wants and should be ready, subject to the terms of the Contract and normal good practice, to accept a form that suits the Contractor's measurement and accounting procedures and equipment. Note that under Sub-Clause 60.2, no certificates will be issued until the performance security (see Clause 10) has been provided and approved. Often, additional Sub-Clauses relating to payments will be included in Part II and some of these may also require action early in the Contract. For example, if the example Sub-Clause - Place of Payment is included, the Contractor must nominate the requisite bank accounts in advance of payment of being certified.

Depending on the country where the Works are to be executed, the scope and type of the Works, particular requirements included in Part II of the Conditions or elsewhere and other special features, there are usually many other things that require attention at or soon after commencement. It is very desirable that a good working relationship is established between those involved, so that there is smooth flow of communications. Many of the Clauses in the Conditions include procedures which are intended to promote good contract practices. The Engineer bears great responsibility for establishing and maintaining sound project management, but if it is to be effective the Employer and the Contractor must also play their parts.

10. BONDS, SECURITY AND INSURANCE

10.1 Introduction

It can be debated as to which party assumes the greater risk in entering into a construction contract for the performance of civil works - the Employer or the Contractor. We usually think of the Contractor as an entrepreneurial type who is willing to apply his management skills and experience to the task and put his assets, and perhaps his company, at risk to marshal labour equipment and material effectively in order to earn a profit.

But there is indeed a serious risk for the Employer as well. Despite careful selection of an Engineer, long negotiation with a lending agency, and even the most diligent prequalification process as to potential tenderers, the Employer may be faced with a project which is stopped dead - for whatever reason.

10.2 Performance Security (Clause 10)

The purpose of taking formal performance security, when required, from the Contractor is to provide the Employer with another entity, financially strong, to which to look for performance of the contract.

Note the opening words of the Clause :

Performance Security

Clause 10.1 If the Contract requires the Contractor to obtain security for his proper performance of the Contract, he shall obtain and provide to the Employer such security within 28 days after the receipt of the Letter of Acceptance, in the sum stated in the Appendix to Tender. When providing such security to the Employer the Contractor shall notify the Engineer of doing so. Such security shall be in the form annexed to these Conditions or in such other forms as may be agreed between the Employer and the Contractor. The institution providing such security shall be subject to the approval of the Employer. The cost of complying with the requirements of this Clause shall be borne by the Contractor, unless the Contract otherwise provides.

Period of Validity of Performance Security

Clause 10.2 The performance security shall be valid until the Contractor has executed and completed the Works and remedied any defects therein in accordance with the Contract. No claim shall be made against such security after the issue of the Defects Liability Certificate in accordance with Sub-Clause 62.1 and such security shall be returned to the Contractor within 14 days of the issue of the said Defects Liability Certificate.

Claims under Performance Security

Clause 10.3 Prior to making a claim under the performance security the Employer shall, in every case, notify the Contractor stating the nature of the default in respect of which the claim is to be made.

In other words, the Clause having commenced with the words, "If the Contract requires", the FIDIC form does not automatically assume that there will be formal performance security of some type. (see also Clause 60.2, to the same effect).

Before discussing the varieties of formal security, it should be considered, from the Employer's perspective, the objective of the concept - contract performance. What other Clauses might give the Engineer the power to provide the Employer with a sense of security that the contract will be completed and on time? The following should be considered :

- (a) Retainage (Clause 60.2(a)) - Self-evidently, the retainage feature of the contract, in accordance with the percentage of retention stated in the tender documents, furnishes some security as the work progresses and the retention money amount is increased. In fact, it has been argued from the Contractor's perspective that there is effectively a duplication of security because of the availability to the Employer of both the retention money and the performance guarantee, if required.
- (b) The Engineer's control over Monthly Payments (Clause 60.2) - It will be the Engineer who will certify to the Employer the amount of partial payment to the Contractor which the Engineer "considers due and payable" . Very rarely does it happen to an alert Engineer that the Contractor could, if he were so inclined, get ahead of the Employer, that is, be paid for work not yet performed. For example, by overstated quantities of excavation or placement of concrete. More usually, there is a lag in payment actually, because the Contractor's monthly statement of work executed is not typically certified for 28 days (Clause 60.2) and the amount due to the Contractor is not paid until 28 days after the certificate has been delivered to the Employer (Clause 60.10).
- (c) The Contractor's Equipment (Clause 54) - Once brought onto the Site, the Contractor's equipment is deemed to be exclusively intended for the execution of the works and may not be removed without the consent of the Engineer. Not only is the equipment thus available for the completion of work in the event of Contractor default pursuant to Clause 54, it may also be possible under local law for the Employer to seize and sell such equipment in the event moneys are owed to the Employer by reason of a default.

Without unduly prolonging this discussion, it is suggested, therefore, that with careful contract administration by the Engineer, the requirement of furnishing formal performance security under Clause 10 may sometimes be dispensed with, and the premium to be paid therefore saved.

10.3 Form of Security

If, despite the above discussion, the Employer elects to require formal performance security, the form of that security should be made clear by including a sample in the tender documents. The form may be a performance guarantee (see p.7 of Part II of the Red Book) or a surety bond (pp. 8-9, Part II) or other form chosen by the Employer. The use of an unconditional bank guarantee is not recommended by FIDIC and has not been included in the Conditions of Particular Application, although required by some Employers.

10.4 Claims Under Performance Security

Before the making of a claim upon the formal security, if required, the Employer is required by the above Sub-Clauses 10.3, to notify the Contractor stating the nature of the contract breach in respect of which the claim is to be made. Normal practice is that the Contractor be afforded an opportunity to remedy his default before the security is invoked. Unlike the comparable Clause in the Yellow Book, to be discussed, this Clause does not establish a particular time period within which the Contractor can "cure" his default. Since the Sub-Clause is new, it may be expected that some future arbitration award will give an interpretation of the language, "prior to making a claim" of Sub-Clause 10.3, by way of a reasonable period.

10.5 Bid Bonds and Other Formal Security

Bid bonds provide an assurance that the tenderer is prepared to sign the contract if his tender is accepted. They are usually conditional upon the bidder or tenderer furnishing performance and/or payment bonds upon execution of the contract. In American practice, incidentally, it is the usual procedure to require both performance bonds, which protect the Employer from default by the contractor, and payment bonds, which protect the Sub-Contractors and suppliers from non-payment by the prime or general contractor.

In the event of a substantial advance payment, or "mobilization payment" being provided under the contract, it may be useful protection at this early stage for the Employer to require a bond with respect to that sum since no work will have been performed and no material or equipment yet delivered at the Site. Obviously, the tender documents will have noted the requirement for this bond as well as for all other formal security to be required, ranging from the tender bond, at the beginning, through any security which might be required upon early release of retainage or upon the commencement of the Defects Liability Period.

10.6 Insurance

The Clauses in the Fourth Edition which deal with risk allocation and insurance requirements are Clauses 20-25.

Clause 20 allocates responsibility between the Employer and the Contractor. Generally speaking the Contractor is responsible for loss or damage that may happen to the Works during the period commencing with the Commencement Date until the date of issue of the Taking-Over Certificate. The Employer's Risks are enumerated in Sub-Clause 20.4.

Clause 21 sets out the insurance requirements. In previous editions the Contractor was required to insure the Works against those risks or damage for which he was responsible. However, some of the Employer's Risks were also insurable, notably damage resulting from design errors and from the forces of nature. For the projects to be fully insured, it was theoretically necessary for the Employer to take out a second policy, on the same project, for his risks. Modern practice is to avoid the problems of two parallel policies applying to the same project - a single policy in the names of both parties, and insuring each party for his risks, is preferable. The Fourth Edition provides for this.

Insurance is to be for full replacement cost. Note that it is not "contract value" and it is not "full replacement value". It is not always necessary to insure for the full replacement value of an entire project, particularly if there is a wide geographical spread of work or if, for some other reason, it is felt that it would never be necessary to replace the entire project. It is the intention that a "First Loss" value would be acceptable - that is, a sum less than the full value of the project, but sufficient to provide for the repair of the most serious damage envisaged.

Clause 22 requires the Contractor to indemnify the Employer for claims arising from injury to third parties or damage to their property.

Clause 23 requires third party insurance to be arranged by the Contractor.

Clause 24 is concerned with accidents to Employees.

Clause 25 is very important and merits considerable study as it contains the general requirements relating to the insurances that are demanded by the Contract.

Attention should also be given to Clause 65 which deals with Specials Risks.

11. CERTIFICATES AND PAYMENTS

11.1 Cash Flow

The subject matter, which relates essentially to when and how the Contractor can expect to receive the money due to him under the Contract, will be considered principally in the context of Clause 60. This Clause, possibly more than any other in the Conditions, is likely to be studied with close attention by contractors at the tender stage. In particular Part II is examined to see what changes and additions that are likely to affect the timing and amounts of payment to the Contractor have been made. In the highly competitive situation of today and with the rates of interest prevailing, it is necessary to think of money not only in absolute terms, but in the context of cash flow. There are, of course, other Clauses which have some bearing on money, but they are not dealt with in this paper.

In the Third Edition, Clause 60 relied almost entirely on Part II. The notes in Part II for this Clause were longer than those for any other Clause and provided a valuable check list of points to be considered. Interestingly, the only example of actual wording for Part II was given under this Clause and related to the final account and certificate. The argument for not being more precise regarding payment was that procedures and systems vary so much from country to country that it was not practicable to write a general purpose Clause.

There is some force in that contention, yet the terms of payment are so important for both parties to the Contract that it seems somewhat casual to leave the writing of the Clause entirely to the individual and possibly inexperienced draughtsman. A study of a range of international contracts of recent years demonstrated some degree of consistency, and even of wording, in dealing with money matters. Consequently, it is not anticipated that the general format of the first four Sub-Clauses will be found to contain much that is new to the reader.

11.2 Preparation of Bill

However, there are a number of points that deserve mention. Under Sub-Clause 60.1, it is the Contractor who has the obligation to prepare the monthly statement. Sometimes, it is referred to as the monthly statement. There are those who use the term monthly claim, but that is better avoided as to some the word claim generates resistance to dispassionate consideration. Nevertheless, it is the Contractor who decides what to include and sub-para (e) provides him with the opportunity to include any sum to which he considers he is entitled, including claims. The Engineer is given the authority to prescribe the form of the monthly statement, but it is normally a matter for discussion and agreement between the Engineer and the Contractor taking account of the latter's computing equipment. When establishing the form, it is wise to remember that the statements will probably be studied by a number of people and that complicated coding familiar only to the computer expert, is better avoided.

11.3 Certification

Attention is drawn to the fact that in Sub-Clause 60.2 the Engineer has 28 days after receiving the Contractor's monthly statement in which to certify, as opposed to an open ended period which was at one time more or less traditional. Note also the last paragraph where it is stated that no amount will be certified until the Contractor has provided the performance security, if one is required under the Contract, and it has been approved by the Employer. The only deduction of any sums due to the Employer that the Engineer is not required to make, when certifying, is Liquidated Damages (see sub-para (b)). The principle is consistent with the wording of Clause 47.

Under Sub-Clause 60.3, half the Retention Money is released upon the issue of the Taking-Over Certificate and, if more than one, then proportionately. The other half is not released proportionately, but only upon the expiry of the last Defects Liability Period and even then may be subject to some withholding if work still remains to be executed.

Sub Clause 60.4 entitles the Engineer to correct or modify any interim certificate, but not the Final Certificate, and in particular to omit or reduce the value of work not being carried out to his satisfaction. This latter entitlement should not be used in a penal sense. It only applies to the work in question and not to all work.

11.4 Other Elements

The remaining Sub-Clauses are not only new, but go into considerable procedural detail for the finalization of the financial side of a Contract. The matter is dealt with in two stages: following the issue of the Taking-Over Certificate in Sub-Clause 60.5, and following the issue of the Defects Liability Certificate, in Sub-Clause 60.6. Doubtless some will contend that the time scale is unreasonable - even unattainable. This is a point of view that must be changed. the practice of letting matters drift on after the physical completion of the work is a source of great irritation to Employers and those funding a Contract. Furthermore, the task of dealing with claims and final measurement months or even years after the event is in itself needlessly time consuming. Agreement is made additionally difficult if staff directly involved when the work was done have left Site or changed their employment. Adherence to the more rigorous time scale will involve more discipline by all parties during the Contract, possibly a slightly greater number of staff while the work is in progress, but any increase at that time will be more than offset by a quicker run down after the end.

Sub-Clause 60.7 refers to the provision by the Contractor of a discharge when the final statement has been agreed. Such a document is increasingly a requirement on Government work, but it should be noted that the Contractor is afforded two clear safeguards in that it does not take effect until payment against the Final Certificate has been made and the performance security has been returned.

Since publication of the Fourth Edition, the question has been raised as to what would transpire if the Contractor and the Engineer were unable to agree a final statement and consequently the Engineer was not in a position to issue a Final Certificate in accordance with Sub-Clause 60.8.

It is considered that failure to agree would ultimately become a dispute which would be dealt with in accordance with Clause 67. Meantime, it is submitted that the Engineer would have a duty to issue a further interim certificate for so much of the draft final settlement as was not in dispute. Indeed, the procedures introduced in Sub-Clauses 60.5 and 60.6 should not be argued as preventing the Engineer from issuing additional interim certificates during the Defects Liability Period if the Contractor submits statements during that time.

Sub-Clause 60.9 preserves the principle included as Sub-Clause 62(2) in the Third Edition.

Sub-Clause 60.10 establishes the Contractor's entitlement to interest if the Employer fails to pay against any certificate within specified periods, 28 days for an interim certificate and 56 days for the Final Certificate. The rate of interest is one of the details to be included in the Appendix to Tender when the documents are being prepared for issue to tenderers. The payment of interest is without prejudice to the Contractor's entitlement under Clause 69. Under that Clause the Contractor may, in the event of non-payment by the Employer, terminate his employment under the Contract, subject to certain procedural steps. Two new Sub-Clauses 69.4 and 69.5, provide the Contractor with another alternative of suspending or reducing the rate of work, rather than taking the extreme step of termination. But, note

that if the Contractor suspends or reduces the rate of work, in accordance with Sub-Clause 69.4, it is without prejudice to his entitlement under Sub-Clause 69.1. If, following suspension of work or a reduction in the rate of work by the Contractor, the Employer still fails to pay the Contractor the amount or amounts due, the Contractor has not lost his entitlement to terminate his employment under the Contract.

Despite the desirability of including positive payment Sub-Clauses in Part I, it is recognized that there are a number of aspects which must be left to Part II. The method of payment in more than one currency or in a currency other than that of the country in which the Works are being executed is not sufficiently uniform in its application to enable standard Clauses to be included in Part I. Indeed, Part I relates in the main to the case where payment is made in a single currency, that being the currency of the country in which the Works are to be executed.

In Part II of the Fourth Edition, example Sub-Clauses are included to cover payments in several currencies, currency proportions and rates of exchange. There is also an example for use where only one currency applies, but it is a foreign currency. There is a further example covering the nomination of bank accounts.

Finally, there is an example for an advance payment. Such payments are common, but the amount and the terms vary so widely that it is not appropriate to set down a standard in Part I.

Further reference to Clause 60 and the possible additions that may be made in Part II is included in a later paper.

12. TIME FOR COMPLETION AND DELAYS

12.1 Introduction

Time is money. For all entities involved in the construction process, time is of such importance that it is trite to solemnly recite, as many contracts still do, that "Time is of the Essence".

For the Employer, looking for a project which may be revenue-producing directly, or at least facilitating development and commerce, the timing may affect the economic sense of a project. (Not to mention the political fall out of a late or incomplete project.) For the Contractor, timely performance and payments directly affect his cash flow, his need to borrow money and his profit. The lending institution will also be reviewing the project schedule and the cost of delays with trepidation - banks are nervous these days !

12.2 Time-related Clauses

It is therefore, apparent that all the various Clauses which relate to time, scheduling, delays, penalties by way of liquidated damages for late completion, and payment for the costs of delay must be considered in their relationships to one another.

In the order in which they appear in the Red Book, which is not necessarily the order of importance, some of the key time - related Clauses are :

Disruption of Progress

Clause 6.3 - The Contractor shall give notice to the Engineer, with a copy to the Employer, whenever planning or execution of the Works is likely to be delayed or disrupted unless any further drawing or instruction is issued by the Engineer within a reasonable time. The notice shall include details of the drawing or instruction required and of why and by when it is required and of any delay or disruption likely to be suffered if it is late.

Delays and Cost of Delay of Drawings

Clause 6.4 - If, by reason of any failure or inability of the Engineer to issue, within a time reasonable in all the circumstances, any drawing or instruction for which notice has been given by the Contractor in accordance with Sub-Clause 6.3, the Contractor suffers delay and/or incurs costs then the Engineer shall, after due consultation with the Employer and the Contractor, determine :

- (a) any extension of time to which the Contractor is entitled under Clause 44, and
- (b) the amount of such costs which shall be added to the Contract Price, and shall notify the Contractor accordingly, with a copy to the Employer.

Failure by Contractor to Submit Drawings

Clause 6.5 - If the failure or inability of the Engineer to issue any drawings or instructions is caused in whole or in part by the failure of the Contractor to submit Drawings, Specification or other documents which he is required to submit under the Contract, the Engineer shall take such failure by the Contractor into account when making his determination pursuant to Sub-Clause 6.4.

A most important Clause concerns the scheduling of the contract works :

Programme to be Submitted

Clause 14.1 - The Contractor shall, within the time stated in Part II of these Conditions after the date of the Letter of Acceptance, submit to the Engineer for his consent a programme, in such form and detail as the Engineer shall reasonably prescribe, for the execution of the Works. The Contractor shall, whenever required by the Engineer, also provide in writing his information a general description of the arrangements and methods which the Contractor proposes to adopt for the execution of the Works.

Revised Programme

Clause 14.2 - If at any time it should appear to the Engineer that the actual progress of the Works does not conform to the programme to which consent has been given under Sub-Clause 14.1, the Contractor shall produce, at the request of the Engineer, a revised programme showing the modifications to such programme necessary to ensure completion of the Works within the Time for Completion.

Because of access to the site is so often a consideration affecting the speed with which work can be performed, it is useful to mention this consideration.

12.3 Interference with Traffic and Adjoining Properties

Clause 29.1 - All operations necessary for the execution and completion of the Works and the remedying of any defects therein shall, so far as compliance with the requirements of the Contract Permits, be carried on so as not to interfere unnecessarily or improperly with :

- (a) the convenience of the public, or
- (b) the access to, use and occupation of public or private roads and footpaths to or properties whether in the possession of the Employer or of any other person ...

Time for Completion

Clause 43.1 - The whole of the Works, and if applicable, any Section required to be completed within a particular time as stated in the Appendix to Tender, shall be completed, in accordance with the provisions of Clause 48, within the time stated in the Appendix to Tender for the whole of the Works or the Section (as the case may be), calculated from the Commencement Date, or such extended time as may be allowed under Clause 44.

12.4 Extension of Time for Completion

Clause 44.1 - In the event of

- (a) the amount or nature of extra or additional work, or
- (b) any cause of delay referred to in these conditions, or
- (c) exceptionally adverse climatic conditions, or
- (d) any delay, impediment or prevention by the Employer, or
- (e) other special circumstances which may occur, other than through a default or breach of contract by the Contractor or for which he is responsible, being such as fairly to entitle the Contractor to an extension of the Time for Completion of Works, or any section or part thereof, the Engineer shall, after due consultation with the Employer and the Contractor, determine the amount of such extension and shall notify the Contractor accordingly, with a copy to the Employer.

12.5 Contractor to Provide Notification and Detailed Particulars

Clause 44.2 - Provided that the Engineer is not bound to make any determination unless the Contractor has

- (a) within 28 days after such event has first arisen notified the Engineer with a copy to the Employer, and
- (b) within 28 days, or such other reasonable time as may be agreed by the Engineer, after such notification submitted to the Engineer detailed particulars of any extension of time to which he may consider himself entitled in order that such submission may be investigated at the time.

12.6 Interim Determination of Extension

Clause 44.3 Provided also that where an event has a continuing effect such that it is not practicable for the Contractor to submit detailed particulars within the period of 28 days referred in Sub-Clause 44.2(b), he shall nevertheless be entitled to an extension of time provided that he has submitted to the Engineer interim particulars at intervals of not more than 28 days and final particulars within 28 days of the end of the effects resulting from the event. On receipt of such interim particulars, the Engineer shall, without undue delay, make an interim determination of extension of time and, on receipt of the final particulars, the Engineer shall review all the circumstances and shall determine an overall extension of time in regard to the events. In both such cases the Engineer shall make his determination after due consultation with the Employer and the Contractor shall notify the Contractor of the determination, with a copy to the Employer. No final review shall result in a decrease of any extension of time already determined by the Engineer.

12.7 Rate of Progress

Clause 46.1 - If for any reason, which does not entitle the Contractor to an extension of time, the rate of progress of the Works or any section is at any time, in the opinion of the Engineer, too slow to comply with the Time for Completion, the Engineer shall so notify the Contractor who shall thereupon take such steps as are necessary subject to the consent of the Engineer, to expedite progress so as to comply with the Time for Completion. The Contractor shall not be entitled to any additional payment for taking such steps. If, as a result of any notice given by the Engineer under this Clause, the Contractor considers that it is necessary to do any work at night or on locally recognized days of rest, he shall be entitled to seek the consent of the Engineer so to do. Provided that if any steps, taken by the Contractor in meeting his obligations under this Clause, involve the Employer in additional supervision costs, such costs shall, after due consultation and the Contractor, be determined by the Engineer and shall be recoverable from the Contractor by the Employer, and may be deducted by the Employer from any monies due or to become due to the Contractor and the Engineer shall notify the Contractor accordingly, with a copy to the Employer.

12.8 Liquidated Damages for Delays

Clause 47.1 - If the Contractor fails to comply with the Time for Completion in accordance with Clause 48, for the whole of the Works or, if applicable, any Section within the relevant time prescribed by the Clause 43, then the Contractor shall pay to the Employer the relevant sum stated in the Appendix to Tender as liquidated damages for such default and not as a penalty (which sum shall be the only monies due from the Contractor for such default) for every day or part of a day which shall elapse between the relevant Time for Completion and the date stated in taking-over Certificate of the whole of the works or the relevant Section, subject to the applicable limit stated the Appendix to Tender. The Employer may, without prejudice to any other method of recovery, deduct the amount of such damages from any monies due or to become due to the Contractor. The payment or deduction of such damages shall not

relieve the Contractor from his obligation to complete the Works, or from any other of his obligations and liabilities under the Contract.

12.9 Reduction of Liquidated Damages

Clause 47.2 - If, before the Time for Completion of the whole of the Works, or if applicable, any Section, a Taking-Over Certificate has been issued for any part of the Works or of a Section, the liquidated damages for delay in completion of the remainder of the Works or of that Section shall, for any period of delay after the date stated in such Taking-Over Certificate, and in the absence of alternative provisions in the Contract, be reduced in the proportion which the value of the part so certified bears to the value of the whole of the Works or Section, as applicable. The provisions of this Sub-Clause shall not only apply to the rate of liquidated damages and shall not affect the limit thereof.

12.10 Variations

Clause 51.1 - The Engineer shall make any variation of the form, quality or quantity of the Works or any part thereof that may, in his opinion, be necessary and for that purpose, or if for any other reason it shall, in his opinion, be appropriate, he shall have the authority to instruct the Contractor to do and the Contractor shall do any of the following :

- (f) change any specific sequence or timing of construction of any part of the Works.

12.11 Monitoring the Program

In the modern evaluation of time-related questions under the Red Book, certain concepts which have come into proper contract administration under new terminology fit readily nevertheless within the provisions of the above Clauses, although not explicitly mentioned.

One is what is known as Critical Path Method ("CPM") scheduling. This is a technique, developed in the 1950's (and thus after the first edition of the FIDIC Red Book) which accommodates on the project schedule the interrelationships and dependencies of various work activities among and upon each other. The familiar and traditionally used bar chart does, of course, show the concurrency of items - it does not show how one activity may have to be completed before another, in whole or in part. By a series of lines forming a "network", the CPM schedule shows such relationships and the CPM network is thus a more sophisticated scheduling device. For complex projects, the Engineer may specifically mandate its use in the Tender documents.

12.12 Acceleration

Another concept which is implicit in the time-related Clauses specifically in Clause 51.1 (f), is that of "Acceleration". By acceleration it is meant obviously a speed-up of the Contractor's construction performance beyond that which would be required under the Contract as originally executed. The means of accelerating the progress of work are various and could include the expedients of working additional hours, bringing out additional equipment, changing the sequences of work, working in additional areas concurrently instead of sequentially, etc.

Whether or not the additional cost of such efforts would be compensable for the Contractor will depend upon the reason for the acceleration and the application of the contract Clauses. Going one step beyond such acceleration as may be actually ordered by the Engineer (under, e.g. Clause 46.1 Rate of Progress or Clause 51.1 Variations), there may also arise a situation in which the Contractor may be deemed to have been "constructively" accelerated. That is, if the Contractor were entitled to a time extension which was refused by the Engineer it would be contended that such refusal should be construed as an acceleration directive although not actually issued as such.

13. VARIATIONS AND CLAIMS

13.1 Introduction

The Clauses relating to variations are 51 and 52. These Clauses are grouped together under the heading: Alternations, Additions and Omissions. The clause relating to claims is 53 and the heading: Procedure for Claims. These three Clauses together with Clause 60 which was covered in an earlier paper, are the principal Clauses which have a bearing on the amount of payments to the Contractor.

There are other Clauses which touch on financial matters, but they are not dealt with in this paper. Furthermore, no mention is made of Clause 44 - Extension of Time for Completion, even although the effects often have a bearing on money.

13.2 Alterations, Additions and Omissions (Clauses 51 and 52)

The general structure of these Clauses does not differ substantially from the Third Edition of the Red Book, but a number of changes in detail have been made, some of which are significant. In making the changes, the objectives have been to increase the clarity, and hence to reduce the risk of differences of opinion or disputes, and to adjust the division of responsibility and risk between the Employer and the Contractor in order to maintain a fair balance between the two parties.

In the opening sentence of Sub-Clause 51.1 the words "power" and "order" have been replaced by "authority" and "instruct". These changes have been made throughout. The practical effect of the changes is slight, but it is felt that the new words reflect better relationships of today. In the same sentence, the word "desirable" has been replaced by "appropriate". In both the old and the new Edition, it is qualified by being "in his (the Engineer's) opinion". Again, the change may be slight, but it was considered that the new word gives less scope for variations that are peripheral to the Contract.

Under Sub-Clause 51.1 paragraph (b), there is an addition making clear that work cannot be omitted by variation simply to have it carried out by the Employer or another contractor. That principle is well recognized in the UK, but is not so readily accepted in some other countries.

Later in the same Sub-Clause, a new paragraph (f) is included enabling the Engineer to vary the sequence or timing of construction, but not, it should be noted, the method as is the case in some documents. The method of construction, subject to any specific requirements in the Specification or elsewhere in the Contract, is a matter for the Contractor. It is one of the means by which the skilled and experienced Contractor will increase his opportunities for profit. It should also be remembered that any instruction of the Engineer relating to method may blur the responsibility for safety.

A small change has been made in the first sentence of the last paragraph of Sub-Clause 51.1, establishing the link between Clause 51 and Clause 52 for the valuation of variations. The last sentence of the paragraph deals with the situation where a variation becomes necessary due to a default of the Contractor. It is clearly inequitable that where the Engineer agrees to vary the Works to provide a technically acceptable, and possibly also the most economic, solution for overcoming an error made by the Contractor any additional cost should be borne by the Employer.

The changes made in what has been incorporated in Sub-Clause 51.2 from Sub-Clause 51(2) of the Third Edition are editorial. The subject matter of the last two sentences of Sub-Clause 51(2) will now be found in Sub-Clause 2.5 of the Fourth Edition, where it has a wider application than just variations.

In Clause 52, the starting point for valuing variations in the Fourth Edition, as in the Third Edition, is the rates and prices set out in the Contract, assuming they are applicable. These rates and prices will, by their nature, include the element for profit provided by the Contractor when he tendered. Sub-Clause 52.1 has been developed to make clear that if the tendered rates and prices are not applicable they shall nonetheless, be used as the basis for new rates and prices if it is reasonable to do so. Consequently, the new rates and prices will also include the profit element. Finally, if the nature of the work involves establishing rates and prices from scratch, they are to be appropriate and hence must also include the profit element. This principle is important as it applies not only to variations referred to in Clause 51, but also to all other work of which the price is to be determined under Clause 52 (see first sentence of Sub-Clause 52.1). Clause 17 is one example of where it is stated that work is to be valued in accordance with Clause 52.

The final sentence which has been added to Sub-Clause 52.1 and to the first paragraph of Sub-Clause 52.2 provides for the determination of provisional or starred rates for interim payments where final rates are not immediately agreed or established. This provision is consistent with what has generally prevailed in the past but was not specifically stated.

In Sub-Clause 52.3 the percentage figure has reverted to 15, as it was in the Second Edition. The text has been reworded in an effort to make what has tended to be a difficult Sub-Clause clearer in its application, but without altering materially the intent. The actual calculation remains, and can only remain, a point to tackle in the context of the specific contract. In the calculation, there must be no double counting. A reference in the Sub-Clause stating that any addition or deduction shall be "subject to any action already taken" emphasizes the principle.

Sub-Clauses 52.1, 52.2 and 52.3 all require due consultation by the Engineer with the Employer and the Contractor before he, the Engineer, determines rates, prices, additions or deductions as is relevant.

Sub-Clause 52.4 contains only minor changes which are of an editorial nature.

Sub-clause 52(5) of the Third Edition has disappeared, having been incorporated in Clause 53.

Part II contains some examples of wording for particular circumstances, including where foreign currencies are involved.

13.3 Procedure for Claims

"Claim" is an emotive word. The sight of it can stir some to refuse or reject before the details have been digested or even read. Possibly dictionaries bear some responsibility by defining claim as "a demand for something as one's due". Here, it is the word "demand" that may cause hackles to rise. Translated into another language for a non-English speaker, and remember that the Red Book is much used internationally, it may be even worse ! Yet the principle is sound, surely it is reasonable to expect to be paid "one's due".

What is due in any circumstance is a matter of opinion and can easily lead to a difference of opinion. But, that is not necessarily so, or at least not in totality. What is agreed to be due is surely better kept away from emotional turmoil and it is advisable to be circumspect in using the word "claim".

One reason why claims, even minor ones, can tend to become the subject of heated exchanges and rancour is the practice that occurs all too frequently of not dealing with claims as they arise. Both parties to the Contract and the Engineer can contribute to this situation and the fault rarely lies with one

alone. When drafting the Fourth edition of the Red Book it was recognized that problems arise if consideration of claims is deferred and it was decided that it would be in the interests of all those involved to grasp the nettle and set out in some detail a procedure for submitting and dealing with claims.

The outcome is Clause 53 which appears under the heading of Procedures for Claims. It is an attempt to introduce some discipline into what has, in the past, often been rather murky scene. Indeed, the confusion that sometimes developed has, in itself, been the cause of yet more claims.

It was fortuitous that, without departing in any substantial way from the principle of preserving previous clause numbering and content, it proved possible to insert a new clause at a reasonably logical place in the Conditions. In the Third Edition Clauses 53 and 54 addressed the same subject and furthermore, the latter was one of the shortest clauses in the Conditions. Consequently, it was easy to incorporate the content of both into Clause 54 of the Fourth Edition. Also, the opportunity was taken to incorporate any relevant material from Sub-Clause 52(5) of the Third Edition (mentioned above) in the new Clause 53.

In brief, the content of Clause 53 is as follows :

Sub-Clause 53.1 requires the Contractor to give notice of his intention to claim within 28 days after the event giving rise to the claim. Note that it is after the event itself and not after the effects of the event are noticed.

Sub-Clause 53.2 requires the Contractor to give notice of his intention to claim within 28 days after the event giving rise to the claim. Note that it is after the event itself and not after the effects of the event are noticed.

Sub-Clause 53.2 requires the Contractor to keep contemporary records in support of claims. The Engineer, in turn, has the duty on receiving notice of intent to claim, to inspect the records and is entitled, if he considers it necessary, to instruct the Contractor to keep further contemporary records.

Sub-Clause 53.3 requires the Contractor, within a further period of 28 days measured from when the notice of intent is given, to submit particulars of the amount claimed and the grounds for the claim. Clause 53 is a procedural Clause and does not, in itself, provide grounds for making a claim. The Contractor must look elsewhere, at Clause 12 for example, to establish a contractual basis. In the case of Sub-Clause 53.3, the period of 28 days is not rigid and provision is made for the Engineer to agree a longer time, subject to it being a reasonable time. Sub-Clause 53.3 recognizes that the effect of a claim may continue over a period and, if that is so, the Contractor is required to submit interim accounts at intervals decided by the Engineer and a final account within 28 days of the end of the effects. A reason for the discipline imposed by this Sub-Clause is so that the accounts can be checked and, if necessary, discussed while those involved are on Site and their memories of the events are still fresh. If the Engineer requires that all accounts submitted to him are copied to the Employer, the Contractor must do so.

Sub-Clause 53.4 provides the Contractor with some safeguard if he fails to comply with the provisions of the Clause, but in the case of delayed notification or submission of accounts and particulars, the Contractor's entitlement is limited to what the Engineer, or an arbitrator, can verify from contemporary records.

Sub-Clause 53.5 deals with the Contractor's entitlement to payment, including interim or part payment, to the extent that he satisfies the Engineer with substantiation. The means of payment will be through a certificate issued by the Engineer pursuant to Clause 60. Again, in this Sub-Clause, the

Engineer is required to consult with the Employer and the Contractor before determining the amount due.

It is hoped that Clause 53 will result in claims being dealt with expeditiously. The proper application requires a change of heart by those steeped in the dilatory behaviour witnessed on occasions in the past.

All these Clauses, and many others in the Fourth Edition, have been amended and developed with a view to facilitating better project management. The responsibility rests not just with the Engineer, though he does have a major role to play but also with the two parties to the Contract. Differences of opinion may occur, but it is important not to lose sight of the fact that the Conditions of Contract are not an end in themselves, but a means of achieving the successful execution of projects.

14. DEFAULT OF THE PARTIES

14.1 Introduction

For a construction project a complete default (as opposed to as inconsequential or "technical" default), which leads to the midstream cessation of work and the formation instead of legal battlefield array, is a disaster. The occurrence of major defaults, however, is a serious fact of life and the Red Book addresses the situations of default in performance by the Contractor and default, especially payment, by the Employer. Particularly, in an effort to avoid a stoppage of work and a complete default, the Red Book anticipates some problems which could lead to default and moves others into the claim category already discussed.

14.2 Contractor Default : Is Termination the Practical Reaction ?

Because the contract conditions impose many obligations on the Contractor, there are many situations in which defaults may occur. The key Clause in this general area is that at 63, Default of Contractor, including the accompanying Clauses concerned with the valuation of the work and materials at the time of termination (Clause 63.2) and with payment after termination (Clause 63.3).

It is, perhaps, unfortunate from the viewpoint of quick comprehensibility that Clause 63 opens with the dense prose of an introductory Clause of over 15 lines. But there, it is understood, lawyers became involved; the opening language is concerned with Contractor bankruptcy and its legal complications. This Clause then enumerates the various other bases, or events, in five categories, which authorize the Employer to terminate the employment of the Contractor. In that enumeration, reference is made to certain of the other relevant Clauses. The point must again be made that, since the conditions are taken as a whole and since there is considerable interrelation of the Clauses, the listing of some Clauses by no means excludes the applicability of others. For example, this important Clause mentions failure to commence work (Clause 41), failure to progress the work timely (Clause 46), failure to correct defective work (Clause 37.4), and so forth. Obviously, in light of the critical Engineer role in the termination situation, in issuing his opinion, the Clause indicating that the Engineer shall exercise his discretion impartially (Clause 2.6) shall also apply, as will the Clause granting an appeal from that exercise (Clause 67). In short, the mention of certain Clauses does not exclude others (contrary to the interpretational maxim, inclusio unius est exclusio alterius).

From the Employer perspective, and that of the Engineer, the opinion of the Engineer given under this Clause must be carefully drawn since it will undoubtedly be evidentiary in any later arbitration proceeding. The 14-day notice to the Contractor must of course, be observed.

In the situation of potential default, however justified, the Employer and his Engineer will practically have to consider the impact of termination on job progress and the ultimate cost of the delay in arranging for a new Contractor. Close monitoring of the Contractor and of his progress by the Engineer will serve as an early warning of the events which may lead to default and perhaps, provide an opportunity to prevent or to mitigate its adverse cost impact.

14.3 Employer Default : Is Abandonment the Practical Reaction for the Contractor?

At the outset, it should be recalled that the obligations of the Employer include more than the making of payments to the Contractor. After all, construction is almost always difficult work and teamwork will make it somewhat less so as compared to an adversary relationship

There are the Employer obligations to furnish the site, to be responsible for the Engineer's prompt return of shop drawings, and so forth. These events become the subjects of claims and, as Clause 53 now makes very clear, the intent is to resolve claims early, while work continues.

But cash flow is the Contractor's life and blood. And except for a few giant construction companies, or those with willing banking affiliates, most contractors are not able to long finance their performance in the absence of the contractually agreed monthly (or partial or "running") payments. Clause 69 recognizes this reality. The intent is to create some relief, if not a remedy, because one of the intentions broadly speaking of the FIDIC form is to foster competition and reduce the gambles. In short, international contracting should not be limited to the giants or those with affiliated banking strength.

Clause 69 allows the Contractor a flexible response, or choice of responses actually to the Employer's failure to pay against a certificate of the Engineer - he may terminate, or he may reduce the rate of work or suspend work, or he may go on working. Obviously, in selecting among these options the Contractor will be informing himself as to the Employer's reason for failure to pay and the prospects for additional funding, if lack of funds is the reason for non-payment.

The effect of a slow down, of course, is to both increase the time and cost of performance to completion, if indeed, payment is later made and full scale performance resumed. For the time extension and the costs incurred, Clause 69.4 provides the contractual procedure.

15. DEFECTS LIABILITY PERIOD

15.1 Introduction

In the Third Edition of the FIDIC Conditions of Contract for Works of Civil Engineering Construction (the Red Book), the Defects Liability Period was termed the Period of Maintenance. The latter expression was occasionally a cause of misunderstanding, as it was sometimes argued that from the very meaning of the word maintenance it must be understood that the Contractor had the responsibility, during the Period, to maintain the Works in the sense of operating, including the provision of personnel and consumables. The Contractor's responsibilities under the previous edition were clear, but defects liability is much more descriptive of the Contractor's commitment. A further advantage of the change is that it establishes consistency of terms on the subject between the Red Book and FIDIC E&M Conditions of Contract (the Yellow Book).

When a contractor tenders he undertakes, as can be seen from the Tender form at the end of Part I of the Red Book, to do three things - "to execute and complete such Works and remedy any defects therein in conformity with the Conditions of Contracts". It should be noted that the Contractor's obligation to remedy any defects is qualified by the words "in conformity with". So the Contractor's responsibility is defined is not open-ended.

15.2 Changes and Implications (Clauses 49 and 50)

The Defects Liability Period and the Contractor's major responsibilities during that Period of completing outstanding work and remedying defects are described in Clauses 49 and 50. The general structure of the Clauses has not been changed materially from the previous edition, but it may be useful to identify some of the detailed changes and to consider the implications.

Sub-Clause 49.1 - This Sub-Clause, and the next two, benefit from details included in the previous rather long sentences being set out as (a), (b), etc; otherwise the changes are essentially editorial. For the length of the Period one still has to turn to the Appendix to Tender and this point will be considered later in this paper.

Sub-Clause 49.2 - The marginal note has been changed to describe more properly what is involved. In the text, the changes are again largely editorial. However, it is noteworthy that the Contractor's obligation to complete outstanding work "as soon as practicable" is strengthened by the statement in Sub-Clause 48.1 that the Contractor's written undertaking shall be to finish outstanding work "with due expedition".

Sub-Clause 49.3 - The apparent possibility in the Third Edition that outstanding work might not be at the expense of the Contractor has been eliminated. In addition a new reference, as sub-para 49.3(b), has been introduced to cover where the Contractor's obligations arise from design for which he was responsible. The last sentence makes clear that where the Contractor is entitled to be paid, the payment shall include cost and profit, the latter being covered by the reference to Clause 52.

Sub-Clause 49.4 - The requirement that the Engineer shall determine only after due consultation with the Employer and the Contractor is included, as in many other Clauses in the Fourth Edition. Otherwise, the changes are editorial.

Clause 50 - If during the Defects Liability Period a defect becomes apparent, the Contractor has an obligation to search for the cause on the instructions and under the directions of the Engineer. The

intent of the Clause is much the same in the previous edition, but it has been made clear that where the defect is found not to be the liability of the Contractor, the cost of searching shall be determined by the Engineer. As in the case of Clause 49, the Engineer makes his determination after due consultation with the Employer and the Contractor. A final point is that in the last line the word "expense" has been changed to "cost", the latter being a defined term (Sub-Clause 1.1(g)(i)). The word expense appeared in a number of places in the previous edition and in some of these, such as Clause 18, it could lead to a difference of opinion as to whether or not profit was included. The word expense is not used in the Fourth Edition.

15.3 Other Claims Relating to Defects Liability

There are a number of other places in the Conditions of Contract which have a bearing on the Contractor's responsibilities during the Defects Liability Period. Some of these will have been touched upon in other papers at the seminar, but it is useful to refer to them, albeit possibly for a second time, within the framework of this paper.

Sub-Clause 10.2 now makes it quite clear that the Contractor has a responsibility to provide a performance security that remains valid until the issue of the Defects Liability Certificate. Although the previous edition implied the same responsibility, the point was occasionally questioned. It is worth emphasizing that the security must remain valid until the Certificate is issued and does not automatically lapse at the end of the Defects Liability Period.

Sub-Clauses 20.1 and 20.3 define the Contractor's continuing responsibility for the care of outstanding Works including the materials and Plant related thereto until these Works have been completed, notwithstanding that a Taking-Over Certificate may have been issued. The Contractor also remains liable for any loss or damage that may arise as a consequence of his carrying out his obligations during the Defects Liability Period.

Sub-Clause 21.2 refers to Contractor's obligation to insure for his liability during the Defects Liability Period.

15.4 Liability After Taking Over

There are many Clauses, for example the group beginning from Clause 26, which are not extinguished with the issue of the Taking-Over Certificate. In the event that the Contractor's operations during the Defects Liability Period involve his obligations under any of these Clauses, he would still have a responsibility.

Clause 33 merits a reference. The Clause now recognizes that upon the issue of the Taking-Over Certificate the Contractor cannot be expected to vacate the Site completely. An additional sentence has been added at the end of the Clause which provides that the Contractor can retain on Site the resources he requires to meet his obligations during the Defects Liability Period. This provision does not alter the Contractor's ultimate obligation to clear the Site at the end of the Period.

Clause 51 - Although it is not expressly stated, it is generally recognized under many systems of law that the Contractor is not obliged to accept an instruction to vary the Works after the issue of the Taking-Over Certificate. If the Contractor agrees to accept the instruction he is in a strong position to state the terms for executing the work. When terms are agreed, it is important that only the cost but also the time are clearly defined. If the carrying out of the varied work is to continue after the end of the Defects Liability Period, consideration must be given to many factors, such as validity of performance security, insurance and issue of Defects Liability Certificate.

Clause 60 - This Clause is dealt with in some detail in a separate paper, but attention is drawn here to Sub-Clause 60.5 where the Contractor's obligation to submit a Statement at Completion 84 days after the issue of Taking-Over Certificate is set out.

15.5 Other Considerations

Clause 61 - This Clause, one of the shortest in the Conditions, states in terms almost identical to the Third Edition that only the Defects Liability Certificate constitutes approval of the Works. Thereafter the Contractor may still have responsibility under any latent defects legislation or other legal requirements such as decennial liability that may apply under the law of the Contract. That law is usually, but not always, the law of the country in which the Contract is to be executed. It should be stated in Sub-Clause 5.1 of Part II of the Conditions. Note that the Introduction to Part II, in subparagraph (i), lists all the Part II Clauses where further information must be included for the Contract to be complete.

Clause 62 relates to the Defects Liability Certificate and any unfulfilled obligations. Sub-Clause 62.1 is little different from the previous edition. It should be noted that, even if the Works are Taking-Over in Sections and a number of Taking-Over Certificates are issued, there is only one Defects Liability Certificate which is issued when the whole of the Works have been taken over and any works instructed pursuant to Clauses 49 and 50 have been completed.

The subject matter of Sub-Clauses 62(2) of the previous edition has been incorporated into Sub-Clause 60.9 of the Fourth Edition.

Sub-Clause 62.2, previously 62(3), is not materially changed from the previous edition. The type of obligation likely to remain unfulfilled when the Defects Liability Certificate is issued cannot be of a physical nature in relation to the Works (see Sub-Clause 62.1), but will in all probability apply to outstanding payments or repayments.

Clause 64 which relates to urgent remedial work makes specific reference to the application of the Clause to the Defects Liability Period as well as during execution of the Works.

As mentioned earlier in this paper, when considering Sub-Clause 49.1, the length of the Defects Liability Period is one of the items found in the Appendix to Tender. The figure, as with all but one of the entries in the Appendix, must be filled in before the Tender documents are issued. The length of the Period is customarily a year, but when using the Fourth Edition it would be more appropriate to enter 364 days as the practice is to express time periods in multiples of seven.

There are, on occasions, good reasons for having a different period. Reference to Part II will reveal an example Sub-Clause for a Contract that has a high proportion of Plant. In this case, if a defect or damage occurs the Period may be extended by the period during which the works cannot be used, but with an ultimate limit of two years (an exception from the multiple of seven principle). This condition is similar to the Yellow Book. There is also a further proviso where progress on Plant has been suspended.

Part II also gives an example Sub-Clause applicable to most dredging work which relieves the Contractor of many of his responsibilities after the effective date of the Taking-Over Certificate. A similar provision might be appropriate for a site investigation contract.

This paper does not deal exhaustively with the relationship of all Clauses to the Defects Liability Period. Most of the major responsibilities of the Contractor are mentioned and the Conditions should be studied as a whole to appreciate the overall position.

16. RESOLUTION OF DISPUTES

16.1 Introduction

Not too many years ago, a quite usual procedure for claims and disputes in construction work, under FIDIC or otherwise, was to simply postpone disagreements until the end of the contract -- an approach perhaps predicated on a desire by the Contractor to maintain a cordial relationship with the Engineer for as long as possible, perhaps predicated on a review of the contract's ultimate loss or profit as the determinant of whether to even assert claims. Actually, postponement rarely made sense, even when interest rates were low.

The modern trend, and even the term "Alternative Dispute Resolution" ("ADR"), is strongly in the direction of urging the parties to resolve disputes promptly. That this is clearly an objective of the FIDIC Fourth Edition is readily apparent when one reads together Clause 53, Procedure for Claims, a new clause really, and Clause 67, Settlement of Disputes, which has been expanded.

Without reiterating the claims language, it is obvious that the emphasis upon contemporary records, isolated to support a claim (53.2), of which notice has been given within 28 days (53.1), imposes a discipline upon both Contractor and Engineer. The contractor must keep contemporary records. The Engineer cannot await the claim submission and then react; he will have to inspect records being kept and instruct the Contractor as to further records. Failure by the Engineer to be proactive in monitoring the record keeping as to the incipient dispute situation will subject him to the implication of his inaction. The concept is not new. A Latin maxim expresses the idea: Qui tacet dum consentire videtur - he who remains silent will be deemed to have consented.

16.2 The Three Phases of Clause 67 : Resolution of Disputes

The groundwork thus laid in Clause 53, the disputes resolution process takes ~~three~~ steps - the Engineer's decision (67.1), the "attempt" at amicable settlement (67.2) and, if ultimately and unhappily necessary, arbitration (67.3).

The Engineer's "Decision" is more than a field judgement at the Engineer's Representative level. Clause 2.3, Engineer's Authority to Delegate, makes clear that the Contractor may question a communication of the Engineer's Representative by referring the matter to the Engineer (2.3(b)). Certainly for major projects, it would be expected that a claim as to which a formal decision has been requested will be analyzed and reviewed by a high level within the Engineer's organization. Thus, any job site confrontations or personality clashes which might influence the Engineer's judgement will be minimized and an objective decision more likely reached. That decision under 67.1 is, of course, guided by that very important Clause 2.6, which requires the Engineer to give his decision (2.6(a)) "Impartially within the terms of the Contract and having regard to all the circumstances". Obviously the term, "after due consultation by the Engineer with the Employer and the Contractor" which occurs in so many other Clauses, does not appear and could not be appropriate in this context. The Engineer is now filling his quite serious, quasi-judicial role and functions as an independent professional. And this is so even though some cynics might contend that the Engineer is under the control of the Employer because he is being paid by the Employer under his own separate contract. It is that professional independence, of course, which the Contractors have relied upon in submitting their tenders.

The Engineer's decision must be rendered within 84 days (12 weeks). The period may be shortened by the Engineer, obviously and, by consent of the Contractor and Employer could be lengthened. The drafting committee evidently believed that a deadline was important and that the approximately three-month period was appropriate. Quite apart from that conclusion of the committee, an American can observe that this is very close to the 90-day period established by federal statute for the decision of the Contracting Officer in procurement disputes - construction or otherwise.

What sort of expertise should the Engineer have or retain in order to reach a decision which is fair to the Employer and to the Contractor in light of the contract provisions ?

A construction dispute may be primarily technical or primarily legal. In courts of law where the jury system is used in civil cases (an arguably dubious procedure), it is said that issues of fact are for the jury, issues of law are for the judge. This is simplistic - most construction issues involved mixed questions of law and fact. Should the Engineer in some case make use of legal counsel or of accounting expertise ? It may be appropriate. If it is thought of a claim as potentially moving along a continuum, then the position of the Engineer should be well considered before the decision and the retaining of expertise not postponed until an arbitration proceeding, if it eventuates, is under way. Within the engineering field it may be necessary to retain specialists, e.g. geotechnical engineers or engineering geologists in claims arising out of different subsurface conditions.

The FIDIC effort to bring claims to a conclusion and remove uncertainty is manifested, again, in the further clause within 67.1 which provides that "appeal" from the Engineer's decision, that is to arbitration, must be taken within 70 days (10 weeks) of that decision.

16.3 Amicable Settlement

The caption for all of Clause 67, namely "Settlement of Disputes", might better have read "Resolution of Disputes" because a "settlement" usually signifies an agreement. In the three-step arrangement of Clause 67 steps one and three, the Engineer's decision and the arbitration panel award are not by agreement. However, step two, amicable settlement clearly must be.

The language provided at Clause 67.2 - "arbitration of such dispute shall not be commenced unless an attempt has first been made by the parties to settle such dispute amicably" - is brief indeed. One could say, positively, that it allows for flexibility and an innovative approach to dispute resolution, perhaps for one of the many new forms of ADR. Or one could say that it is unhelpfully vague.

The FIDIC drafting committee did consider the suggestion of a more explicit, even technical, settlement mechanism, such as recourse to the ICC Centre for Technical Expertise, to be made available at this second step of Clause 67. It also had to cope with the objection that this step would be abused and merely serve to delay progress on to arbitration. In any event the Clause which emerged recognizes that a serious settlement effort ought to be made and that mention of the word is not to be taken as a sign of weakness. Moreover, in those countries where it might be felt that settlement dialogue was not contractually permissible if not actually stated, contractual reassurance is afforded.

16.4 Arbitration

The subject of arbitration is vast, complex and growing in importance. Clause 67.3 provides recourse to arbitration when disputes are not resolved by the Engineer's decision or settled amicably. The FIDIC form thus recognizes that disputes, if they have to be determined by third parties, are better resolved by industry experts chosen by the contracting parties under internationally recognized rules than by a local court, probably having little construction experience.

Arbitration will be discussed in more detail later - its principles apply, of course, in the contexts of both the Red Book and the Yellow Book. One point should be noted in connection with the text at Clause 67 in Part II of the Red Book. When the Part I language is used intact, the reference to ICC which is there included covers both rules and an appointing administering authority. When, however, an Employer elects in preparing the contract documents to make reference instead to other rules, such as those of UNCITRAL (United Nations Commission on International Trade Law), he must also make reference to an administering authority. This could be, e.g. the Cairo Centre or the Arbitration Centre at Kuala Lumpur, both established under the auspices of the Asian-African Legal Consultative Committee.

17. THE USE OF PART II

17.1 Introduction

No contract carried out under FIDIC Conditions of Contract for Works of Civil Engineering Construction (The Red Book) is complete without Part II Conditions. The definition of Contract in sub-paragraph 1.1(b)(i) of Part I states that it "means these Conditions (Parts I and II)". Even in the most simple Contract where the Part I Conditions are found to be acceptable as they stand, there are at least six Sub-Clauses that require the addition of details in Part II to make the Conditions complete.

17.2 Past Practice

Before considering individual Clauses, it is useful to review the development of Part II. In the Third Edition of the Red Book, Part II comprised notes on various Clauses which were referred to as "an aide-memoire in the preparation of Clauses .. which will vary as necessary to take account of the circumstances and locality of the Works". In only one place, under Clause 60, was actual wording suggested here only covering the submission of a statement of final account and the issue of a final certificate.

The Third Edition also included a Part III specifically for Dredging and Reclamation Work. Unfortunately, it often proved in practice that insufficient care was taken in ensuring the consistency of the three Parts, with some Part I Clauses being amplified or amended in both Part II and Part III. Consequently, ambiguities and differences of opinion tended to arise. Furthermore, the use of three Parts meant, inevitably, that it was necessary to look in three places to establish the full effect of each Clause.

17.3 Part II and the Fourth Edition

In the Fourth Edition, Part II has been greatly expanded to include, in addition to an extensive aide-memoire, example wording for many Clauses. It is important to appreciate the significance of the word "example". The wording given is not "standard" and may apply to a particular Contract only in part or not at all. But, the wording has been carefully prepared to be consistent with Part I and the examples show how to present Part II material so that it does not conflict with Part I.

As indicated above, there are a number of Sub-Clauses where additional details must be given in Part II for the Conditions to be complete. A list of these Sub-Clauses is given in the Introduction to Part II in sub-paragraph (i). A glance through the list will show that even although principles can be the same for all Contracts, there is certain information that must be specific, such as the names of the Employer and the Engineer.

The Introduction, under sub-paragraph (ii), lists the Sub-Clauses in Part I which indicate that supplementary information may be included in Part II (to suit particular circumstances or requirements). However, the Contract would still be complete, in the sense that it could be applied, without supplementary information.

There are two further sub-paragraphs in the Introduction, (iii) and (iv), which alert the reader to the fact that Part II entries may also be necessary on account of the type, circumstances or locality of the Works or due to the law of the country or exceptional circumstances.

At the end of the Introduction there is a reference to Dredging and Reclamation Work. Although there is no longer a Part III, it is recognized that dredging and some types of reclamation work require

special consideration. Example wording is given in Part II under ten Clauses, which are listed in the last paragraph of the Introduction. Again, it must be borne in mind that they are examples that may or may not apply. Also, they are not limiting and in some Contracts other Clauses may require additions or amendment for dredging work.

Consideration was been given to include an example wording applicable to other types of civil engineering, such as tunnelling and pipelines. In this event this was not done, but that does not preclude suitable additions where the circumstances warrant it. However, it should be remembered that the Conditions are intended to give the terms of contract entered into by the parties, the Employer and the Contractor, and are not the place to incorporate technical details. The Specification is the place for such matters.

It is not possible in this paper to comment on every addition that may be made in Part II. The possibilities are almost infinite. The Clauses below have been chosen either because they are important in themselves or because they provide an opportunity to demonstrate a particular point.

17.4 Clause 2

In paragraph (b) of Sub-Clause 2.1 of Part I it is stated that "if the Engineer is required... to obtain the specific approval of the Employer before exercising any such authority (an authority specified in or necessarily to be implied from the Contract) particulars of such requirements shall be set out in Part II". The Engineer is not a party to the Contract, but he has duties and authority. The Engineer has a separate contract, the Agreement, with the Employer and this Agreement may restrict the Engineer in certain respects. It is important that these restrictions are known to the Contractor as they may affect the speed with which the Engineer can exercise some of his duties or even, exceptionally, prevent him from doing so.

In most Contracts, the number of Clauses under which the Engineer has to seek the approval of the Employer before taking action is quite short. Clause 51 is a typical example. Usually the Engineer is given discretion by the Employer up to a certain figure and only has to obtain approval if the proposed variation is likely to exceed the figure.

There are certain Clauses where it would be improper for the Employer to impose restrictions on the Engineer. Clause 60 is one such Clause and another, even more notable is Clause 67.

17.5 Clause 10

It is important for the Contractor to know, when he tenders, the form of security he will be expected to provide. It may affect his costs and thus his tender and also influence his assessment of risk.

Two examples are shown in Part II: a Performance Guarantee which is used in parts of Europe and a Security Bond for Performance which is commonly used in North America. The use of an On-Demand Guarantee is not favoured by FIDIC.

17.6 Clauses 21, 23 and 25

Whether or not insurances are arranged by the Employer as opposed to the Contractor, is for the Employer to decide. It may be his custom to do so, based upon previous experience, or he may be persuaded by others.

The notes or aide-memoire and the example Clauses themselves are self explanatory, but a few points are worth emphasizing:

- (i) the details of the insurance to be arranged by the Employer must be a part of the tender documents, so that tenderers can assess their exposure as well as their protection.
- (ii) the insurances arranged by the Employer cover the Works and Third Party risks, but do not cover other risks such as Contractor's Equipment.
- (iii) it is for tenderers to determine what other insurances they should provide, either on account of contractual obligations or for their own purposes.

17.7 Clauses 34, 47 and 60

Because of the great variety of factors that may have some bearing on arrangements for labour, a considerable number of example Sub-Clauses are given. It is most unlikely that all would apply to any one Contract and equally it is probable that any Contract will require certain Sub-Clauses of which a precise example has not been given.

The positive nature of a bonus is normally much more likely to encourage timely or early completion than the negative aspect of liquidated damages. A confident tenderer will often assume that he will earn the bonus and take at least a part of the sum into account, when calculating his tender sum, in order to enhance his competitiveness.

Unless an Employer is barred by government regulations from providing a bonus incentive, it is generally worthy of consideration. There is, of course, little advantage in providing a bonus for early completion of a Contract, if other factors such as related work being done under a separate contract, is not bonused and is unlikely to be available early.

Many factors may influence the payment Clauses: the source of finance, whether private, government, IFIs or a mix; use of both tied and untied aid on a single Contract; the extent to which the currency of the country where the Works are located is freely convertible. The list could be much longer.

Another, more practical, aspect to bear in mind is the proportion of the tender sum represented by Plant. Where the proportion is high, it may be desirable to provide for staged payments during manufacture at the suppliers works. Such staged payments should normally only be made against a Guarantee, in a similar way to an advance payment, which is covered in one of the example Sub-Clauses.

This Clause, more than most of the others, is likely to require Part II Sub-Clauses. Payments and their timing are vital for the Contractor. Tenderers will study the wording carefully when estimating their probable cash flow. It is extremely important that the wording is clear and that the arrangements stated are consistent with the Employers payment procedures.

17.8 Clause 70

The Fourth Edition provides examples Sub-Clauses for three ways of dealing with increases and decreases in prices. Prices generally go up, but they can come down and whatever is written must recognize both possibilities.

The first alternative is to have no adjustment, in other words a fixed price Contract - not to be confused with a lump sum Contract. This method is not to be recommended when rates of inflation are high, as they are in many parts of the world today, except for Contracts of short duration, say a year or less.

Where price adjustment is to apply, there are, essentially, two ways of dealing with it: either by documentary evidence or by the use of formulae. The traditional and for many years the only way of dealing with the matter is to require the Contractor to state in his tender the rates he has assumed in his pricing for labour and for certain materials. In addition, the Contractor would be required to substantiate his assumptions with copies of government schedules of wage rates or the like and with quotations for materials. Generally the classes of labour and the types of materials to which price adjustment will apply are stated by the Employer/Engineer in the tender documents. It is important to make clear, in the case of materials, whether the quotations which justify the tenderers assumed costs, often referred to as basic rates or basic prices, apply FOB, CIF, delivered Site or at some other point. If transport, is involved, the type of transport, whether air, sea, road or rail, and in some cases whether by means of the Contractor's own equipment or by some other means, must be stated. Unless the basic assumptions are definitive, there is a likelihood of disputes at a later stage when the Contractor seeks to recover increases in cost by comparison between invoiced costs and the basic rates.

In some circumstances and to a certain degree, this method can work well, but there are disadvantages. In some parts of the world, governments have been known to resist any increase in published wage schedules in order to be able to argue that inflation is under control. What the Contractor may be forced to pay if he is to retain his labour force may be an entirely different matter. Another disadvantage is that it is rarely practicable to include more than a minority of the materials involved, albeit probably those which collectively amount to a significant part of the total material element of the Contract costs. The logistical problems of dealing with the documentation substantiating increased costs of a host of minor items results in the listed materials, to which price adjustment will apply, often being limited to perhaps cement, reinforcing steel and two or three other items depending on the nature of the Contract. Normally, the list of items is restricted to materials for incorporation in the Works, which gives the Engineer a basis for checking that price adjustment payments are limited to what is actually required by the Contractor to execute the Works. Even then there may still be some difficulty in deciding whether the quantities allocated to Temporary Works are reasonable. The risks, in some areas, of materials on which the Employer has paid price adjustment being siphoned off into the open market are considerable. Consequently, the inclusion of expendables in the list of items can give rise to severe problems and tedious differences of opinion. Despite that it is by no means unknown for items such as petrol, diesel and explosives to be listed.

Price adjustment by means of documentary evidence will rarely cover more than half the Contractor's costs and sometimes much less. There is no simple solution for applying adjustment to Contractor's Equipment depreciation, for example and the initial cost of the Equipment may in itself amount to some 30 per cent of the tender. In fact, adjustment based upon documentary evidence is only a partial solution to the problem, and although better than nothing, still leaves a large element of risk with the Contractor on which he is forced to make a gamble on a large contract to be executed over a period of several years the sums involved can be very significant. For that reason, the custom of some Employers of insisting that the Contractor should be entitled to be paid only a proportion of the difference in cost is to be deplored.

A better method of dealing with price adjustment is by the application of a formula. The purpose of the formula is to establish a price adjustment factor that will be applied each month to the sum due to the Contractor. The formula for a particular contract will be made up of a number of elements each related to a specific item or type of input by the Contractor. Each element is given a weighting approximating to the estimated percentage of the total cost accounted for by that element. The total of the percentage figures will add up to 100 per cent of the tender. Indices, established prior to award, will be applied each month to the relevant element when calculating the price adjustment factor

- Formulae usually, but not always, include a fixed element. The justification for a fixed element is variously argued to be that the Contractor's general overheads and profit should not vary and that any Contract will include some items of which the cost will be incurred at fixed prices. Counter arguments

can be mounted against all these contentions. If there is inflation, the Contractor's overhead will also increase and why, in an inflationary climate, should profit be fixed? Costs that can be expected not to increase beyond the amounts included by the Contractor in his tender are normally those pertaining to his initial expenditure; items such as the performance security for example. Because the provision of such items is generally paid for through early certificates of the Engineer, the index applicable will have risen little, if at all, from the base index and that in itself will result in the Contractor obtaining no unreasonable benefit at the expense of the Employer. Progressively as the Works are executed it appears less and less easy to expect the Contractor to bear a fixed element. However, some Employers seem to feel that without a fixed element, the Contractor will profit unreasonably. If the fixed element is limited to only 5 per cent the consequences may not be severe, but if a much higher figure is used the whole purpose of incorporating price adjustment provisions will be proportionately reduced and the Contractor will be obliged to gamble on what the effects of inflation will be. Despite that, many Employers do insist upon a high fixed element and in parts of West Africa for some types of project 40 per cent is the norm for the fixed element.

The practicability of adopting formula based price adjustment is dependent upon the availability of regularly compiled indices for various categories of input. In well developed countries there are usually many indices compiled and published month by month covering labour, sometimes even on a regional basis, all major construction items, such as cement and steel, and also consumer goods and many other items. Difficulties arise where the indices themselves are suspect or where they are few in number or even non-existent in the country where the Works are to be executed. For some elements of cost, particularly for goods that are to be manufactured overseas, it may be possible to apply foreign indices. However, many countries are wary of exposing themselves to what they see as imported inflation.

So, although price adjustment by means of a formula is in theory the best way of providing for the effects of inflation, it is sometimes not feasible to arrange, or at least not on a sound basis and one which is acceptable to the Employer. In that case, one is thrown back to the method described earlier of documentary evidence in the full knowledge that it will probably deal with only a part of the total cost.

When considering price adjustment, Part I, Sub-Clause 70.2 must not be overlooked. This Sub-Clause gives the Contractor protection against the financial consequences of legislation that comes into effect subsequent to the date 28 days before submission of tenders. The setting of the date in this way recognizes that it is not reasonable to expect tenderers to take into account in their tenders last minute charges. The Sub-Clause, as should all price adjustment provisions, allows for both decreases and increases in costs. The important thing to note is that it only applies to the extent that the variation in price has not already been taken into account through the application of Sub-Clause 70.1, where the general price adjustment provisions will have been set out.

17.9 Sum Up

In Part I, Conditions have been drafted to give a fair balance of risk and responsibility between the Employer and the Contractor. It is unfortunately, not unknown for some Employers to use Part II as a means of increasing the Contractor's risks and reducing the Employer's responsibilities. Quite apart from the possibility that such action may deter some tenderers from submitting an offer, changes of this sort may well result in ambiguity or contradictions between Clauses leading to differences of opinion and claims.

Another practice favoured by some Employers, but fortunately only a few, is for Parts I and II to be integrated into a single volume. This course of action is not recommended. Experienced Contractors become familiar with Part I in its printed form as published by FIDIC and can fairly easily assess the effect of the Part II Clauses. If both are combined it is far more difficult to distil out the particular changes and additions. For the same reason, the management of the Contract during execution is also complicated.

18. FORM OF CONTRACT AND DEFINITIONS

18.1 Form of Contract

The Conditions of Contract for Electrical and Mechanical Works (the Yellow Book) are, unlike the Civil Conditions, all contained in one volume. It is proposed to analyse the contents of this volume both in itself and in comparison with the Red Book which was studied in an earlier paper.

The reason for most of the major differences between the two books is that the type of work involved is not the same. It is not simply that civil engineering implies one or more of excavation, concrete, structural steel and the like whereas electrical and mechanical engineering (E&M work) implies hydraulic equipment, turbines, generators and switchgear. The work of civil engineering is almost entirely carried out in the location where it will perform its function - in other words on Site. E&M work is largely carried out in the factories of manufacturers, often located in a different country to the project, and is only transported to the Site when it is ready for final assembly or placing in position and setting to work. This significant difference in the type of work affects the content and wording of many of the Clauses in the Conditions.

Although many of the differences can be attributed to the reasons given above, there are others for which the rationale is less obvious. It is hoped to be able to throw some light on the background to some of the differences, but it would be less than frank to deny that in places of the wording reflects the personal inclinations of different draftsmen.

As with the Red Book, it is proposed to consider the "form" under two headings of "structure" and "type".

18.2 The Structure of the Contract

In common with the Red Book, the Conditions are divided into two parts :

- * Part I General Conditions
- * Part II Special Conditions

The principle which dictated the division of the Yellow Book into two parts is the same as in the Red Book. Part I has general application and is intended to be incorporated unaltered in all electrical and mechanical contracts. Part II is provided to form a basis for conditions necessitated by the particular type of work or the geographical location and the governmental requirements.

Part II is subdivided into Section A and Section B. The content of Section A is intended to be limited to those matters where the provisions of Part I refer specifically to an alternative solution to be stated in Part II. Section A is only an outline giving introductory wording to facilitate the proper insertion of additional material for the respective Clauses. If nothing is added in Section A, Part I will apply as printed. If only certain elements of Section A are completed, only those Clauses for which additional material has been inserted will be affected and for the rest Part I will continue to apply. In summary, the Clauses in Section A need only be filled in where it has been determined that alternative solutions are necessary.

Section B gives no more than a heading and allows for the insertion of any matter, whether additional to or in substitution of Part I Clauses, where it has been decided that special provisions are required.

Although it is relatively unlikely that no change at all to Part I would be necessary, the Contract would still be complete if nothing was entered in Part II.

The most notable difference between the Yellow and the Red Book in the structure of the Conditions is that the former contains what is termed "Preamble". The Preamble lists those Clauses where details additions to Part I are essential to complete the Contract. In effect, the Preamble replaces part of the Red Book Part II and the whole of the Red Book Appendix to Tender. (The Yellow Book has no Appendix to Tender.) The Preamble and Part form the subject of a later paper and hence will not be dealt with in detail here.

The Yellow Book also contains within the single volume a form of Tender and a form of Agreement. Both are broadly similar to these in the Red Book, but note should be taken of para 4 of the form of Tender which is not included in the Red Book form.

18.3 Type of Contract

The type of Contract envisaged under the Yellow Book is much less closely defined than under the Red Book. The latter clearly anticipates remeasurement and the inclusion of a Bill of Quantities. The Yellow Book does not mention a Bill of Quantities and terms of payment are one of the items to be inserted in the Preamble. There is mention of a Schedule of Rates, but it is not stated whether it is to be used for interim and final payment purposed or for calculating the cost of variations or for some other purpose.

Some Yellow Book Contracts are of a lumpsum nature, not necessarily just one lump sum, but a series of lump sums for different items of work. If there are many items, an element of remeasurement is introduced, particularly as it is not unusual to have a sort of mini-bill to allow for measurement of miscellaneous work. To determine the type in a particular case, it will be necessary to study the terms of payment which are the subject of a later paper.

Another difference to bear in mind is that a Yellow Book Contract usually requires that the bulk of the design is done by the Contractor. The Red Book assumes that the Engineer will do the design, other than of Temporary Works.

18.4 Definitions - Clause 1

In the Yellow Book all defined terms are included in Clause 1. There, they are set out in alphabetical order. That makes it easier to find quickly an individual term, but it makes it more difficult to relate them to each other than under the grouping layout of the Red Book.

A comparison of the Yellow and Red Book definitions will reveal that there are a lot of similar items, but there are a few significant differences some of which are dealt with here.

1.1.1 - Commencement Date

The Commencement Date is defined as the latest of five events. Some of these events are not within the control of the Contractor which can pose problems when programming the work.

1.1.3 - Contract

There are two notable differences from the Red Book: the listing of both "Employer's Drawings" and "Contractor's Drawings" which arises from the fact that the Contractor will be doing the design of the Works; and the reference to "Schedule of Rates" rather than "Bill of Quantities".

1.1.15 - Engineer

In an earlier paper in relation to the Red Book, it was mentioned that the Employer would be obliged to discuss with the Contractor any proposal to change the Engineer. In the Yellow Book, the Employer is required to obtain the Contractor's consent to any change - see Sub-Clause 2.8.

1.1.18 - Force Majeure

The expression "Force Majeure" is not used in the Red Book.

1.1.20 - Gross Misconduct

"Gross Misconduct" is another expression which does not figure in the Red Book.

1.1.23 - Plant

This term is cited only to bring out that, in the Yellow Book, "Plant" includes materials. As indicated in the equivalent paper on the Red Book, materials are too significant an element of civil work to lose them in an all embracing term Plant.

1.6 - Costs, Overhead Charges and Profit

Note that the Contractor is required to state his profit percentage in the Preamble. There is no equivalent reference in the Red Book.

19. OBLIGATIONS OF THE CONTRACTOR

19.1 Introduction

Under the Yellow Book format, the nine Clauses from Clause 8, General Obligations, through Clause 16, Patent Rights, happen to fall under a sort of sectional caption: Obligations of the Contractor. The next sectional caption: Obligations of the Employer, happens to have one Clause, Clause 17 concerned with the site and its access and with import permits. Can it facetiously be suggested that the obligations are nine-fold more burdensome for the Contractor ?

As with the conditions of contracts for civil works, it should be noted at the outset that obligations are reciprocal between the parties, and of course, permeate the entire series of contract conditions. The interrelationships among Clauses is self-evidently complex - far too complex for the captions to be particularly meaningful; and, as with the civil works conditions, there are obligations far beyond the general observation that the Contractor shall perform the construction in the field and the Employer shall pay. In fact, the Contractor does perform various administration-like functions, such as providing insurance (Clause 43.1), in the names of the Contractor and the Employer, and providing formal performance security (Clause 10). The Employer performs certain functions which facilitate the physical performance in the field such as providing access (Clause 17).

The basic obligation for the Contractor under the Yellow Book is, in accordance with the Contract, "with due care and diligence" to "design, manufacture, deliver to site, erect, test and commission the Plant and carry out with the Works within the Time for Completion" (Clause 8.1). As general as this sounds, it is recognized that it leads to numerous other Clauses, specifications and drawings: it emphasizes the key distinction from the Red Book: The Contractor is responsible for design and manufacture of the Plant whereas in the Red Book he is responsible for execution and completion of the Works, designed by another entity (who will frequently, but not always be the same entity as the Engineer).

19.2 Unforeseen Site Conditions

The yardstick for determining unforeseen site conditions is expressed somewhat differently in the Yellow Book from the format for civil works.

In the E&M conditions, the language is as follows, requiring a reading of Clause 11 and Sub-Clause 26.1(c) together:

Site Data 11.1 - The Tender shall be deemed to have been based on such data on climatic, hydrological and general conditions on the Site and for the operation of the Works as the Employer or the Engineer has made available to the Contractor for the purposes of the Tender. The Contractor shall be responsible for his own interpretation of such data.

Sufficiency of Contract Price 11.2 - The Contractor shall be deemed to have satisfied himself on and taken account of in his Tender :

- (a) all the conditions and circumstances affecting the Contract price,
- (b) the possibility of carrying out the Works as described in the Contract,
- (c) the general circumstances at the Site (if access has been made available to him) and
- (d) the general labour position at the Site.

The Contractor shall not be responsible for the accuracy of information given in writing by the Employer or the Engineer but shall be responsible for his interpretation of information received from whatever source.

Physical Obstructions and Conditions 11.3 - If during the execution of the Works on Site the Contractor encounters physical obstructions or conditions of the kind stipulated in Sub-Clause 26.1(c) the Contractor shall be entitled to recover the additional cost incurred in consequence.

The Engineer shall certify and there shall be added to the Contract Price the additional cost of:

- (a) complying with any instructions which the Engineer, after due consultation with the Employer and the Contractor, issues to the Contractor in connection therewith, and
- (b) any necessary measures which the Contractor may take in the absence of specific instructions from the Engineer.

The definition of conditions thus referred to at 26.1(c) is "physical obstructions or conditions which could not reasonably have been foreseen by the Contractor".

19.3 Programme

Clause 12 covers the obligation of the Contractor to provide a fully detailed and informative programme within 28 days of the Commencement Date for the approval of the Engineer.

After approval, the Contractor may not vary or deviate from the programme without further approval of the Engineer.

This is a sensible control - especially in an E&M contract where it is highly probable that the activities of the Contractor are very closely tied in with the activities of other contractors (e.g. the civil contractor) and key dates have already been established and coordinated.

19.4 Contractor's Representative

It is a requirement of the Contract that the Contractor appoint one (or more if appropriate) representative or Site Agent who will in effect be the Contractor's senior man on the Site. Any instruction or notice given to this man will be deemed to have been given to the Contractor as such. This means that any notices etc., issued under the Contract can either be sent to the Contractor's Head Office, or given to the Site Representative.

Under Clause 13.2, the Engineer may require the Contractor to remove "any person employed by him in the execution of the Works" if such person is either incompetent or negligent or otherwise misconducts himself, a power to be exercised only after deliberation.

19.5 Contractor's Equipment (Clause 14.1)

Very often in E&M work, much of the Equipment necessary for the installation of the Plant, etc., is borrowed from the civil contractor and details of such available Equipment must be given in Part II - or, if such Equipment is being provided by the Employer in accordance with Clause 14.4, then details shall be given in the Preamble.

Apart from this identified Equipment, the Contractor must supply everything necessary for the proper installation and execution of the Works and, once supplied, he may not remove it from the Site until it is no longer required or the Engineer gives his consent for its removal.

19.6 Information for Import Permits, etc.

By Clause 17.5 it is the Employer who obtains all import permits and licences, so Clause 14.8 requires the Contractor to provide all necessary information to enable the Employer to do this.

Note however, that the information required under this Clause refers to "all Plant and Contractor's Equipment" while the Employer is only obliged to obtain the licenses etc., in respect of "the Plant or Works" (Clause 17.5) which does not include Contractor's Equipment. This would seem to imply that the Contractor is himself responsible for obtaining such licences for his own Equipment.

19.7 Patent Rights

The question of patent rights, registered designs, etc., is more relevant in an E&M contract - where the Contractor is doing the principal design and selection of Plant - than in a civil works contract. Clause 16 gives the Employer full protection against infringement of such rights by the Contractor and, in the event that such matters are the responsibility of the Employer, Clause 16.3 gives the Contractor corresponding protection *mutatis mutandis*.

20. LABOUR, WORKMANSHIP AND MATERIALS

20.1 General Obligations

The Clauses which relate specifically to the subject matter of this paper are 18 to 22 inclusive. Before analyzing these Clauses, it is useful to refer briefly to some of the Contractor's general obligations.

Sub-Clause 8.1 states -

"The Contractor shall, in accordance with the Contract, with due care and diligence, design and manufacture, deliver to Site, erect, test and commission the Plant and carry out the Works"

and goes on to state

"The Contractor shall also provide all necessary Contractor's Equipment, superintendence, labour and all necessary facilities therefore".

The important points to note from this Sub-Clause are :

- (i) the Contractor is required to carry out his obligations "in accordance with the Contract". The reference to the Contract gives the Contractor's obligations the widest possible contractual application. Contract is a defined term, see Sub-Clause 1.1.3, listing all the documents included. In relation to this paper, note in particular the reference to Specification and Drawings. It is principally in these documents that standards of workmanship and quality of materials will be defined.
- (ii) the Contractor's obligations are expressed in relation to Plant. That is to be expected in a Yellow Book contract which relates to electrical and mechanical works. Plant is a defined term, see Sub-Clause 1.1.23, and embraces materials.
- (iii) the provision of superintendence and labour is included in the Contractor's obligations. By using both terms, all categories of persons that the Contractor requires to meet his obligations are covered.

Thus, the importance of Sub-Clause 8.1, when considering labour, workmanship and materials is apparent.

20.2 Setting Out

Sub-Clause 8.2 places upon the Contractor the responsibility to set out the Works. The setting out is to be done in relation to original points, lines and levels of reference given by the Engineer. Thereafter, subject to there being no error in the information provided by the Engineer and no default by another contractor, the Contractor is completely responsible for the setting out and any checking by the Engineer does not relieve the Contractor of his responsibility for accuracy.

In many cases, the degree of accuracy required may be given in the Specification, in others it may depend upon undertakings given by the Contractor in his Tender and included in the Contract, or even upon normal good practice and customary standards of workmanship.

20.3 Definitions

Before proceeding further, it is helpful to consider the meanings of the terms labour, workmanship and materials. None of the three is defined in Clause 1 and hence it is necessary to rely upon normal usage of the words.

(i) Labour

The word covers the general body of skilled, semi-skilled and unskilled persons other than, in some instances, those employed to superintend as referred to in Sub-Clause 13.1.

(ii) Workmanship

The word applies to the work of a person or at least to work controlled by a person, and although there is often the implication that it is good work, the work of a craftsman, that does not necessarily follow. Even good work is not, in isolation, a precise expression and, in a Contract, it is essential to specify the standards required. This is often done by reference to Codes of Practice.

(iii) Materials

The matter of substance of which anything is made is as clear a description of material as one can find. So, it follows that the nature of materials in any particular context will depend upon what is being made. If one is manufacturing a crane, the materials will include steel. If one is preparing a temporary hard standing for Contractor's Equipment, broken brick or other hard core are materials. These two examples demonstrate that materials are included in work that is permanent and becomes the property of the employer, see Sub-Clause 1.1.23 referring to Plant, and are also required for temporary work which is often cleared away on completion.

One other aspect of materials, not in relation to the meaning of the term, but having a bearing on the Contractor's freedom of choice, is patents, registered design, copyright, trade mark or the like - see Clause 16. In brief, the Contractor has an obligation to indemnify the Employer against any infringement unless it results from following the design or instructions of the Employer or the Engineer or from another cause outside the control of Contractor.

The remainder of this paper is devoted to analyzing the five Clauses, mentioned in the opening paragraph, which deal specifically with the subject matter. At this point, it is worthy of note that, with the exception of Sub-Clause 18.3, none of the Clauses makes any reference to or is mentioned in the Preamble.

20.4 Clause 18

This Clause, comprising four Sub-Clauses, is the only Clause devoted solely to labour. Sub-Clause 18.1 places on the Contractor all responsibility for arranging to engage, pay, house, feed and transport labour, unless the Contractor provides otherwise. The proviso often applies, for example, on a major construction site, where a number of contractors are active, it is quite common for the Employer to arrange for the provision of housing for all contractors and possibly feeding and transport also. If the Employer undertakes this responsibility, it is important that he complies with the dates of availability and the quality specified or the Contractor will have grounds for claim, not only payment but also time.

Under Sub-Clause 18.2, the Contractor has an obligation to submit returns as required by the Engineer showing numbers and classes of labour and supervisory staff.

As noted above, Sub-Clause 18.3 refers to the Preamble where the normal working hours have to be stated for this Sub-Clause to have effect. Unless the Contractor has to be restricted, either on account of environmental issues or activities of other contractors, there is a lot to be said for giving the Contractor considerable freedom of choice. Where the Contractor will be required to suspend work or some operations for a period of time to enable other contractors to carry out their work full details must be given. These details are frequently set out in the Specification and a cross reference with the Preamble may be necessary. Where the Works involve extensive commissioning tests, particularly if some days of continuous operation are involved, again the details must be specified. Unnecessary restrictions on the Contractor's working arrangements are likely to result in extra costs to the Employer.

Sub-Clause 18.4 sets out the circumstances when work can be carried out outside normal working hours.

20.5 Clause 19

This Clause, together with the three Clauses that follow, all come under the heading of Workmanship and Materials.

Sub-Clause 19.1 begins with the unremarkable statement that everything shall be executed as set out in the Contract. It then goes on to state that where not set out in the Contract the manner of manufacture and execution shall conform with recognized good practice. Unfortunately, what is and what is not good practice is sometimes a matter of opinion and local customs leading to dispute. It is desirable to be as precise as possible in the Contract and to specify compliance with recognized standards.

In Sub-Clause 19.2, the Contractor's obligation to enable the Engineer to check work before it becomes hidden is stated. The first sentence limits this obligation to work "on Site". It is for consideration when preparing tender documents whether this limitation should be amended or deleted in Part II in the light of the work to be executed in the particular contract, but see commentary on Sub-Clause 20.2 below. The rest of the Sub-Clause lays down the procedures to be followed by the Contractor and the Engineer regarding the arrangement for the latter's check.

Sub-Clause 19.3 entitles the Engineer to instruct the Contractor to uncover work that is hidden. In such a case, provided that the Contractor has complied with Sub-Clause 19.2, if the work is found to be in accordance with the contract, the Engineer must certify the cost to the Contractor of uncovering and making good, plus profit. The Contractor could also be entitled to an extension of Time for Completion - see Sub-Clause 26.1, sub-paragraph (d).

20.6 Clause 20

Sub-Clause 20.1 entitles the Engineer to delegate, in accordance with Sub-Clause 2.3, inspection and testing to an independent inspector. If the Engineer uses this entitlement, the independent inspector is, for this purpose considered as an Engineer's Representative.

Under Sub-Clause 20.2, the Engineer is entitled to check Plant during manufacture, whether in the Contractor's own premises or elsewhere. However, it is stated that no inspection examination or testing by the Engineer shall release the Contractor from any of his obligations. This statement reinforces the general statement in the last sentence of Sub-Clause 2.1.

Sub-Clause 20.3 deals with the procedures, as between the Contractor and the Engineer, for establishing the time and place for any testing of Plant. If the Engineer fails to attend as arranged, the

Contractor may, unless the Engineer instructs otherwise, proceed with the tests. In this case, the Engineer has to accept the validity of the Contractor's test readings.

Sub-Clause 20.4 states that the Contractor shall provide all necessary assistance for tests carried out at the Contractor's premises or those of any Sub-contractor, subject to the tests being provided for in the Contract. Again, the importance of a clear Specification in the tender documents is evident. If the tests are not specified in advance, the Contractor cannot be expected to have allowed for them in his Tender.

If Plant passes the tests, the Engineer has a duty to issue a certificate to this effect. (See Sub-Clause 20.5) It should be borne in mind that such a test certificate does not relieve the Contractor of any further obligations. See Sub-Clause 30.11 regarding the Defects Liability Certificate which referred is to in another paper.

20.7 Clause 21

Sub-Clause 21.1, the only Sub-Clause in this Clause, sets out the procedure to be followed if Plant is found, on testing, to be defective. It should be noted that minor defects which do not affect the commercial operation of Plant do not entitle the Engineer to reject it. Nonetheless, the Contractor is not relieved of his obligation to make good minor defects of the Plant is not in accordance with the Contract. It should also be noted that any costs incurred by the Employer, which would include costs of the Engineer, in the retesting of previously defective Plant are deducted from the Contract price - in other words they are to the Contractor's account.

20.8 Clause 22

This short Clause requires the Contractor to apply to the Engineer in writing for permission to deliver not only Plant, but also Contractor's Equipment, to the Site. It will be appreciated that on a Site where space is limited and many contractors are working, each having a tight schedule to follow, control by the Engineer of the allocation of space is essential. At the same time, the Engineer must avoid jeopardizing the Contractor's programme and must endeavour to ensure that the Contractor's entitlement under the Contract to access and to space is met in accordance with requirements. When the Plant and Equipment is delivered, the Contractor has the responsibility for its reception - see the last sentence of the Clause.

20.9 Summing Up

The effective application of Clauses 8 to 22 depends, more than do most of the Clauses in the Conditions, on the adequacy and clarity of the Specification and other Contract documents where details of standards and performance required and of tests to be carried out are stated. Deficiencies in specifying any of these matters will, most probably, lead to claims from the Contractor for extra payment and extension of time.

21. CERTIFICATES AND PAYMENTS VARIATIONS AND CLAIMS

21.1 Introduction

Earlier in the seminar, Certificates and Payments and Variations and Claims under the Red Book had been covered. Here much the same ground in relation to the Yellow Book is covered. There are a number of notable differences between the two books in the terms of Clauses covering financial matters. There is good reason for many of these differences as the nature of the work and the place where the greater part of it is executed in relation to its ultimate location are not the same. These observations will be amplified later in the paper. Despite the differences, the basic philosophy is very similar. The Yellow Book, in common with the Red, is written with the intention of establishing and preserving a fair balance of risk and responsibility between the two parties to the Contract.

The principal Clause which relate to the subject of this paper are 33, 31 and 34. The order follows the order of the title and is also the sequence adopted in describing the details. There are other Clauses which touch on financial matters, but they are not dealt with in this paper. Furthermore, Clause 26 - Extension of Time for Completion will not be commented on even though the effects often have a bearing on money. However, it is worth noting that the grant by the Engineer of an extension of time does not necessarily entitle the Contractor to additional payment. In this respect the principles of Yellow and Red Books are identical. If the Contractor believes that he is due additional payment he must look for his entitlement in another Clause.

21.2 Clause 33 - Certificates and Payment

With one exception, this Clause has more Sub-Clauses than any other Clause in the Conditions. Nevertheless, it is not a long Clause as many of the Sub-Clauses are of only two or three lines. However, the Clause contains a reference to the Preamble and several references to Part II.

Sub-Clause 33.1 is extremely brief and simply states that terms of payment shall be as stated in the Preamble. Clause 33 is one of over a dozen Clauses in the Conditions that rely on the Preamble for details which are essential for the smooth running of the Contract. See the note at the beginning of the Preamble. If the Preamble is incomplete or the details are not clear differences of opinion will inevitably arise during the execution of the Works. Entries in the Preamble and in Part II must all be consistent with each other as well as with Part I of the Conditions.

Earlier, reference was made to some of the principal differences between Civil and E&M work. The former is generally executed on Site and in the location where it will subsequently be operated or used. In contrast, E&M work is often largely carried out at a manufacturer's works and is only transported to Site when it is ready to be placed in position and set in operation. Consequently, the Contractor incurs large costs in the purchase of materials and the manufacture of Plant long before any goods are delivered to the Site. As with a Civil contract, an E&M contract usually includes provision for an advance payment, but in the latter case the terms of payment often allow for further payments at certain stages, such as on assembly and testing while the Plant is still in the manufacturer's works and, later, on shipment. All such payments are usually made only after the Contractor has provided the Employer with a guarantee of the sum involved. These arrangements have become traditional for E&M work and are often referred to as the custom of the industry.

Because the type and diversity of Plant can vary so widely, it is not possible to write standard terms of payment, as has been done in the Red Book. For that reason, there is the reference to the Preamble, where particular items appropriate for the Contract in question must be inserted.

The next Sub-Clause, 33.2 deals with the method to be followed by the Contractor when applying for payment. The wording of the Sub-Clause is general in order to reduce the risk of ambiguity with the terms of payment set out in the Preamble which will, as indicated above, be particular. This Sub-Clause, by referring to Part II, anticipates the possibility that some special terms may apply to applications for payment by the Contractor, but unlike the Preamble, it does not require an entry in Part II to make the Contract complete.

The reference under sub-paragraph (c) to Clause 34 should be noted. Comments on Clause 34 are made later in this paper.

Sub-Clause 33.3 imposes a duty on the Engineer to issue a certificate of Payment to the Employer within 14 days of receiving an application for payment from the Contractor. The time allowed to the Engineer is not long, but it should be borne in mind that the basis for establishing sums due to the Contractor in E&M Contracts is normally fairly simple. However, note that it is the Engineer not the Contractor, who must ultimately decide what is due. The sub-paragraphs in this Sub-Clause make it clear that the engineer is not entitled to use his authority in a penal sense and can only withhold payment in particular circumstances.

Modification or correction of a previous certificate, in accordance with Sub-Clause 33.4, can generally become necessary for only two reasons. Either a mistake in determining the amount due becomes apparent or work which was thought to be acceptable is found not to be in accordance with the Contract. As with Sub-Clause 33.3, the Engineer is not given authority to act in a penal sense. Any correction or reduction must be calculated with regard to the specific circumstances that apply.

Sub-Clause 33.5 requires the Employer to pay the Contractor within 28 days of the date of issue of the Engineer's certificate. Again, there is a reference to Part II which provides an opening for a different time to be specified it must be remembered that the Contractor, in calculating his cash flow, will take account of the time he will have to wait for payment. If a period longer than 28 days is specified the contractor will allow for the increased waiting period in his tender. Unless there are overriding reasons for changing the period, it is desirable to adhere to 28 days.

Sub-Clause 33.6 establishes the Contractor's entitlement to interest if payment is delayed, that is if the payment is not made within the time stated in Sub-Clause 33.5 or as otherwise specified in Part II. Sub-Clause 33.6 is another instance where there is a reference to Part II, in this case indicating that a rate of interest different from that stated in the Sub-Clause might be specified. As with the time for payment, it is preferable not to depart from Part I unless there are very compelling reasons.

It will be noted from the last sentence of Sub-Clause 33.6 that the payment of interest is without prejudice to other rights and remedies of the Contractor. The next Sub-Clause, 33.7, sets out the remedies available to the Contractor not only where the Employer fails to pay by the due date, but also where the Engineer fails to certify. In either case the Contractor is entitled to stop work by giving 14 days notice and the cost, plus profit, of so doing becomes due to him.

An additional and even more significant remedy is afforded to the Contractor when the Engineer fails to certify in accordance with the Contractor; by giving 28 days notice, the Contractor is entitled to terminate the Contract. The application by the Contractor of this remedy could place the Engineer in a very exposed position.

Sub-Clause 33.8 refer to the situation where a part of Works is to be paid for on the basis of quantity supplied or work done and requires that in this case the provisions for measurement are to be given in Part II. This reference to Part II is thus different from the majority, which simply provide an

alternative to the Part I requirement, in that in the circumstances described it assumes the same importance as the Preamble. If the details are not given the Contract is not complete.

Sub-Clause 33.9 gives a time limit of 28 days after the issue of the Defects Liability Certificate for the Contractor to apply for the Final Certificate of Payment and describes the details to be provided by the Contractor. Note that the Contractor is required to include all claims, as well as the value of Plant supplied and work done.

Under Sub-Clause 33.10, the Engineer has 28 days to certify after receiving the application submitted in accordance with Sub-Clause 33.9. The Conditions are silent on the procedure to be followed where claims and possibly measurement are disputed. One would expect that in such a case the Engineer would certify by the due date that much of the application with which he agreed, while efforts to resolve differences continued.

Sub-Clause 33.10 also describes the procedure to be followed when the Contractor fails to apply for the Final Certificate of Payment by the proper time.

Sub-Clause 33.11 states the full significance to the Contractor and the Employer of the Final Certificate of Payment. The Sub-Clause identifies two circumstances where such Certificate is not conclusive. In either case, the sum ultimately found due to the Contractor could differ from that certified.

21.3 Clause 31 - Variations

The provisions of Sub-Clause 31.1 - Engineer's Right to Vary are wide. He can "alter, amend, omit, add to or otherwise vary any part of the Works". However, this broad entitlement does not give the Engineer authority to instruct the Contractor to carry out a variation which is nothing to do with the Works. Also, under many systems of law, the entitlement to omit work does not apply where the purpose is for the Employer to entrust the work to another Contractor. A further limitation is after the Engineer is not entitled to issue a Variation Order after the Works have been taken over.

Sub-Clause 31.1 debar the Contractor from varying the Works without an instruction from the Engineer, but it does entitle him to propose variations to the Engineer. The Engineer, of course, may or may not agree with the proposal.

Sub-Clause 31.2 sets out the procedure to be followed prior to the Engineer issuing a Variation Order to the Contractor. The procedure involves the Engineer giving the Contractor the general details of the proposed variation and the Contractor responding with a description of what is involved, together with information on the effect on his programme and on any of his obligations under the Contract and the cost implications. On receipt of the Contractor's response, the Engineer has a duty to consult with both the Employer and the Contractor before deciding whether to issue the Variation Order.

On occasions, the Engineer and the Contractor may be unable to agree the financial terms, in which case Sub-Clause 31.3 comes into effect. This Sub-Clause sets out the principles to be applied in determining the Contractor's entitlement.

Sub-Clause 31.4 states that if the Engineer issues a Variation Order the Contractor is obliged to proceed, even if any possible extension of time or adjustment of the Contract Price has not, at that time, been determined. Clearly, it is desirable that matters of time and cost should be agreed before a Variation Order is issued, but usually even more important is the avoidance of delay in the execution of the Works.

The final Sub-Clause of Clause 31, Sub-Clause 31.5 requires that where matters of cost have not been agreed prior to the issue of a Variation Order, the Contractor shall keep records which shall be open to inspection by the Engineer. In such circumstances the Engineer would be well advised to avail himself, at the time, of his entitlement to inspect the records. If he considers the records to be wrong or inadequate he should immediately advise the Contractor.

21.4 Clause 34 - Claims

"Claim", as stated in an earlier lecture, is an emotive word, but it should be borne in mind that a claim by the Contractor may only be a request for additional payment to which he is entitled under the Contract. Unfortunately, claims often lead to differences of opinion. Even if the principle is agreed the quantum may be disputed. There are about 20 sub-clauses under which the Contractor is entitled to claim and in each case it is made clear whether the claim may include profit.

Sub-Clause 34.1 requires the Contractor, where he considers himself entitled to claim additional payment to give notice to the Engineer within 28 days after the circumstances giving rise to the claim become known to the Contractor and to submit particulars as soon thereafter as possible. Certain limitations on the time for submission of the particulars are stated and the Engineer is entitled to ask for further particulars.

Sub-Clause 34.2 deals with the assessment of claims following receipt of particulars from the Contractor. The Engineer is required to consult with the Employer and the Contractor before making his determination. It should be noted that the determination remains the responsibility of the Engineer and he must exercise his discretion impartially within the terms of the Contract and having regard to all the circumstances.

The three Clauses covered in this paper all have a bearing on the amount and timing of payments due to the Contractor. The timing is almost as important to the Contractor as the amount, as both factors influence the Contractor's cash flow. Any additions or alterations made in Part II will be studied carefully by the Contractor at tender stage to see what effect that may have on his cash flow. Changes which are to the disadvantage of the Contractor or where it is not clear what the full effect may be will normally be reflected in an increased tender sum.

22. RISKS AND INSURANCE

22.1 Introduction

Risks and insurance under the Yellow Book, is a broad term, inclusive of the possibilities of contractual default, of force majeure and of the particular kinds of events which are normally insurable.

22.2 Performance Security

The contract language for an instrument of formal performance security is arranged quite differently at Clause 10.1 through 10.3 of the Yellow Book from what was discussed earlier as to Clause 10 of the Red Book, in two important respects:

- (i) The Red Book does not specify whether the formal performance security shall be conditional or unconditional. It leaves this question to be expressed by way of the form of the security, to be annexed to the conditions, if the contract actually requires the Contractor to obtain formal security for his proper performance of the Contract. Thus, review of the form by the potential tendering Contractor will tell him whether the security is to be conditional or not. It happens, as we have noted, that both of the sample forms furnished in Part II of the Red Book are, in fact, conditional (pp 7-9, Part II).

On the other hand, the E&M conditions of contract, in Part I provide that claims under the performance security are conditional as follows :

Claims under Performance Security 10.3 - Whether or not the Performance Security is stated by its terms to be payable on the demand of the Employer the Employer shall not make claim under the Performance Security unless one of the following conditions is satisfied:

- (a) the Contractor is in breach of the Contract and fails to remedy the breach within 42 days after receiving written notice from the Employer requiring him so to do. The notice shall state the intention to claim under the Performance Security, the amount claimed and the breach relied upon or,
- (b) the Employer and the Contractor have agreed in writing that the amount demanded is payable to the Employer, and the amount has not been paid within 42 days thereafter or,
- (c) the Employer has obtained an award in arbitration under Clause 50 and the amount awarded has not been paid within 42 days after the award, or
- (d) the Contractor has gone into liquidation or is bankrupt.

In every case the Employer shall, when making the claim, send a copy to the Contractor.

- (ii) The second respect in which the two sets of conditions differ as to performance security concerns the matter of affording a remedy or cure period to a defaulting, or allegedly defaulting, Contractor. While, as can be seen in the above-quoted language, there is a 42-day period in which the Contractor may "remedy the breach", in the Red Book the language was rather brief: "Prior to making a claim under the performance security the Employee shall notify the Contractor" (Clause 10.3, Part I, Red Book).

22.3 Insurance

Preliminary to considering the insurance clauses of the Yellow Book, the differences between the civil works conditions and electrical and mechanical conditions should be briefly recalled.

- (a) The substance of Red Book work is usually bulk operations - earth moving, rock blasting, large concrete pours. It might be called low tech, as opposed to high tech which is more like the specialist work and manufacture covered by the Yellow Book.
- (b) While design under the Red Book is by the Engineer (retained by the Employer), this responsibility is usually assumed by the Contractor under the E&M conditions.
- (c) Work commencement is almost immediate at the site after award in civil works but rarely so in E&M works contracts because of the time required for ordering, manufacture and testing of equipment.
- (d) The execution is on site in civil works, mostly off site in E&M.
- (e) The measurement for payment in civil works is by quantities performed in accordance with the bill of quantities whereas the major items of equipment are the usual basis for payment in electrical and mechanical contracts, paid for based upon a schedule of rates.
- (f) The use life of the civil works project typically is lengthy while that of the E&M project is shorter, frequently requiring considerable maintenance.
- (g) The revenue factor, and hence the importance of completion date achievement, is much more significant in E&M work. There are, of course, exceptions - e.g. a road might be a toll producer, or electric plant or provide subsidized or free electricity.

22.4 Risk Allocation (Clauses 37-42)

The allocation of the risks of loss or damage to property and death of personal injury as between the Employer and the Contractor is made (as with the Red Book) in a way reflective of the parties' ability to gauge or, better, prevent such loss and to control the damage in the event of loss. In addition to setting out the allocation, a goal is also to avoid having the Contractor cover in his tender events which may not occur.

In the Yellow Book, the allocation is managed by specifying at Sub-Clause 37.2 the Employer's risks, in ten categories; all other risks are the Contractor's risks (Clauses 37.3). The first five are related to war, revolution, radiation, etc., and the latter five arise out of Employer acts or failures.

Clause 38 makes the Contractor responsible for the care of the works during construction, until the Risk Transfer Date, defined at 38.2, on which the risk of loss or damage to the works passes from the Contractor to the Employer.

22.5 Damage and Injury

The Contractor's liability with respect to loss or damage to the property of third parties and also the property of the Employer other than the works is covered in Clause 40.

22.6 Limitations of Liability

An important Clause at 42 strikes a balance between the risks allocated in limiting the recoverable damage to what was foreseeable at the time of contract by requiring mitigation of loss and restricting the parties' claim rights as to lost use or indirect damage.

22.7 Insurance Requirement (Clause 43)

The insurance provision at Clause 43 is intended to require the coverage by insurance of the liabilities imposed by Clauses 37 to 42. The Contractor takes out the insurance to provide protection in the joint names of himself and the Employer.

23. COMPLETION AND TAKING OVER

23.1 Introduction

Timely completion of a Contract is of importance to the Employer and the Contractor. Both will probably incur extra costs if the Contract is completed later and although in certain circumstances one party or the other may be able to recover costs from the other party, it cannot be taken for granted and furthermore the amount recovered may not meet all the costs.

The financial consequences of failing to complete an electrical and mechanical Contract on time may be particularly severe and easily quantifiable, as the Plant when commissioned will most likely be revenue earning. The lack of revenue, if commissioning is delayed, will immediately show up on the projected cash flow.

The principal Clauses relating to the subject matter of this paper are 25 and 29 and they will be dealt with in that order before referring to a number of other Clauses which have some relevance to time.

23.2 Clause 25 - Time for Completion

This Clause and the two which follow come under the general heading of "Completion". Despite the shortness of the Clause there are two points to note:

- * For the Contractor to have fulfilled his obligations, the Works shall be not only complete in themselves, but shall have passed the "Tests on Completion", a defined term. Details of the tests will usually be given in the Specification and it is important that they are identified there as "Tests on Completion", so that the Contractor knows what his obligations are.
- * The other point is that the Works shall be completed within the "Time for Completion", another defined term. The time is calculated from the Commencement Date, but as commented in an earlier paper the basis for determining the date is subject to so many possible requirements which have to be met that the actual start date may be difficult to predict with certainty.

23.3 Clause 26 - Extension of Time for Completion

Sub-Clause 26.1 sets out the various causes which may entitle the Contractor to an extension of time. If the Contractor considers that any of these causes has arisen, he is required to give the Engineer notice within fourteen days of the circumstances becoming known to the Contractor. Note that it is when the circumstances become known to the Contractor and not when the circumstances arise. This difference can be important and can lead to arguments if the Contractor gives notice long after the event and contends that he had not previously been aware of the circumstances. Having given notice, the Contractor is required to give supporting details (in other words to substantiate his assertions) as soon as possible. There is no precise time stated for giving supporting details and again arguments may occur if the Contractor is slow in providing the information and the Engineer then has difficulty in checking the facts.

On receipt of the details, the Engineer has a duty to discuss the matter with both the Employer and the Contractor and then to grant an extension of time (or to determine that no extension is due), notifying both parties. Even at the risk of repeating what is said many times in this seminar, the Engineer having consulted with the parties makes his own determination using his professional judgement. He should not allow himself to be unfairly influenced by the consultation.

Sub-Clause 26.2 makes clear that if the cause of delay is suffered by a SubContractor, the Contractor may still be entitled to an extension of time if he in turn is delayed by the SubContractor

Sub-Clause 26.3 introduces an interesting provision which gives the Employer the right to require the Contractor to complete the Works or a part thereof earlier than the Time for Completion. However, early completion will almost certainly involve additional cost and the Sub-Clause provides that first the extra sum to be paid, calculated on a daily basis, shall be agreed between the parties. Agreement may not always be quick or easy to reach.

23.4 Clause 27 - Delay in Completion

Sub-Clause 27.1 gives the Employer an entitlement to a reduction in the Contract Price if the Contractor fails to complete by the due date. The reduction, expressed as a percentage per day, and the maximum amount will be stated in the Preamble. The Employer is obliged to give notice of his intention to claim a reduction within a reasonable time. Note that the Employer is only entitled to make the reduction after the Contractor's failure has occurred. The Employer cannot anticipate failure and penalize the Contractor in advance.

Sub-Clause 27.2 deals with the situation where there is prolonged delay and the Contractor has still not completed by the time when the Employer is entitled to make the maximum deduction. Various courses are open to the Employer of which the most draconian is to terminate the Contract. Such an extreme course should only be adopted by the Employer if he sees little prospect of the Contractor completing. Although the Contract entitles the Employer to recover any loss he has suffered from the Contractor, the amount is limited to the sum stated in the Preamble. The Sub-Clause includes a number of other important features not mentioned in this brief account and deserves detailed study.

23.5 Clause 28 - Tests on Completion

This Clause which stands under a heading on its own comprises nine Sub-Clauses and sets out the procedure for arranging to carry out Tests and the course of action to follow if the Tests are delayed or fail.

Sub-Clauses 28.1 and 28.2 define the notice required and the timing. Note that if the Engineer fails to appoint a time or fails to attend at the time he has appointed, the Contractor is entitled to proceed with the Tests and the results shall be accepted as accurate. Although this provision would appear to prevent the Engineer from requiring the Tests to be repeated for his benefit, it would not prohibit the Engineer from questioning the acceptability of the Works at a later stage if he had reason to believe that the Works did not conform with the Contract requirements.

Sub-Clause 28.3 covers the situation where the Engineer considers that the contractor is unduly delaying the Tests and entitles the Engineer to require that the Tests are carried out within 21 days. If the Contractor then fails to carry out the Tests, the Engineer is entitled to carry them out at the cost of the Contractor. Such action presupposes, of course, that the Works have been completed to the stage when testing is possible. Despite the fact that it is stated that Tests carried out in these circumstances shall be at the risk of Contractor, there are reservations as to whether it would be prudent for the Engineer to carry out Tests of some types of Plant without the cooperation of the Contractor.

Sub-Clause 28.4 places on the Employer the obligation to provide all the facilities for carrying out the Tests. The item in the list which deserves special note is "apparatus". The Employer may need to take action well in advance in order to have the apparatus in place when it is required. The Employer's responsibilities under this Sub-Clause are in contrast to Sub-Clause 20.4, which relates to

testing on the premises of the Contractor, where the Contractor has the obligation to provide the facilities.

Sub-Clause 28.5 deals with retesting in the event of failure. Note that failure does not lead to automatic rejection and that provision is made for repeating Tests.

Sub-Clause 28.6 acknowledges that there may be a difference of opinion about the interpretation of the test results. If that occurs both parties are required to provide a statement of their views together with supporting evidence. These statements would be of great importance in the event that the matter ultimately proceeded to arbitration.

Sub-Clause 28.7 sets out the three options open to the Engineer, if on repetition of the Tests, it still results in failure. Note that it is only following a repetition of the Tests that this Sub-Clause comes into effect. Note also that it is another instance where the Engineer is required to consult with the Employer and the Contractor before taking action.

Sub-Clause 28.8 puts on record that the Engineer shall make allowance when considering the results of the Tests for any use of the Works by the Employer which may have already taken place. The Sub-Clause which may have a bearing on the position are cited.

Sub-Clause 28.9 places on the Engineer an obligation to issue a Certificate as soon as the Works or any Section has passed the Tests. Note that he is required to issue the Certificate to both parties.

23.6 Clause 29 - Taking Over

It is important that the procedures for taking over the Works are correctly followed as, on taking over, responsibility for the care of the Works passes from the Contractor to the Employer. Responsibility for care of the Works and the passing of risk are covered by Clauses 38 and 39 which should be studied in relation to taking over.

Sub-Clause 29.1 established that when

- (a) the Works have been completed,
- (b) the Works have passed the Tests on Completion, and
- (c) a Taking-Over Certificate has been issued

the Employer shall takeover the Works. In other words, the Employer is obliged to take over the works. He cannot argue that it is not a convenient time or that he is not ready.

It should also be noted that if completion is not absolute there are minor respects, not affecting the use of the Works for their intended purpose, in which the Works are not complete, taking over is not prevented.

Sub-Clause 29.2 gives the procedure for the Contractor to follow to apply for a Taking-Over Certificate and for the action of the Engineer on receipt of the application. The Engineer is not obliged to issue a Certificate, but if he does not he must give his reason for not doing so and must specify the work required to be done to enable the Certificate to be issued.

The Sub-Clause also covers the situation where the Engineer fails either to issue the Certificate or to reject the application. Note that separate Taking-Over Certificates may be issued where the Works are divided into Sections, but note also that "Sections" is a defined term and that the Sections must be specifically identified in the Contract.

Sub-Clause 29.3 makes clear that the Employer is not entitled to use any part of the Works unless a Taking-Over Certificate has been issued and also sets out the consequences should he do so. The Employer should take care not to breach inadvertently the terms of this Sub-Clause by, for example, stacking material in a part of the Works, unless there is clear provision elsewhere in the Contract entitling him to do so or he first obtains the agreement of the Contractor. Even in the latter case, the Employer would be wise to ensure that he and the Contractor have the same understanding of the consequences in relation to Sub-Clause 29.3.

Sub-Clause 29.4 covers the circumstances where the Contractor is prevented from carrying out the Tests on Completion by the Employer, other contractors of the Employer or the Engineer. The Employer is then deemed to have taken over the Works and the Engineer is required to issue a Taking-Over Certificate. But, there is an important proviso that the Works shall not be deemed to have been taken over if they are not substantially in accordance with the Contract. This limitation would appear to cover the situation where the Works are not substantially complete as well as where they are clearly not in a fit state to pass the Tests on Completion.

If the Works are taken over under this Sub-Clause the Contractor is not relieved of his obligation to carry out the Tests on Completion, but any additional costs of carrying them out at a later stage are added to the Contract Price.

23.7 Other Clauses Relating to Time

Among other Clauses which may have a bearing on time, there are three to which attention will be drawn.

Clauses 23 and 24 - Suspension of Works, Delivery or Erection

Clause 23 entitles the Engineer, but not the Contractor, to suspend the progress of the Works or the delivery of Plant or Contractor's Equipment or the erection of Plant. During suspension, the Contractor has an obligation to protect, secure and insure the Works. Under Clause 24, the Contractor is entitled to any additional costs, unless the suspension is due to a default by the Contractor.

Clause 24 also states the conditions of payment for Plant which has not been delivered to Site at the time of suspension. The conditions which will apply in the event of prolonged suspension are also stated and include provision in some circumstances for the Contractor to terminate the Contract. Note that although the Contractor is entitled to terminate, he is not obliged to do so. Finally, the Clause covers the situation where the Contractor is given permission or is ordered to resume work.

23.8 Defects of Taking Over (Clause 30)

The Contractor's obligations include the remedying of defects during the Defects Liability Period - usually a year. The reason for mentioning the Clause in this paper is that if a defect involves replacements or renewals, the Defects Liability Period is extended. It is only when the Period or extended Period has expired and the Contractor has fulfilled all his obligations under the Contract that the Engineer issues a Defects Liability Certificate. Note that where the Works have been completed in Sections, the Defects Liability Periods will end at different times and there may be a series of such Certificates.

24. FORCE MAJEURE AND DEFAULT

24.1 Introduction

The concept of "Force Majeure" - which is the occurrence of unforeseen circumstances which prevent, totally or partially, one or both parties from fulfilling their contractual obligations - is accepted and understood the world over. It is the definition and interpretation of the circumstances which differ.

The Yellow Book thus uses recognized terminology and defines, for the purposes of the Contract, exactly what circumstances shall be considered as Force Majeure and thereby invoke the provisions of Clause 44.

24.2 Force Majeure Events and Their Effect

Clause 44.1 - Definition of Force Majeure

Force Majeure means any circumstances beyond the control of the parties and the Clause continues by giving four groups of examples of the types of occurrences which will constitute Force Majeure :

- Group (a) concerns war between nations (as opposed to civil war) and warlike hostilities and typical consequences such as requisition and embargo.
- Group (b) concerns what may be termed hazards of radioactivity.
- Group (c) concerns revolution, civil war and other rebellious activities within a nation.
- Group (d) concerns local riots and disorder - except where such activities are confined to employees of the Contractor.

Clause 44.2 - Effect of Force Majeure

The Clause states the generally accepted consequence of Force Majeure - and that is that neither party shall be considered in default if it is unable to fulfil its obligations due to the occurrence of Force Majeure circumstances.

Clause 44.4 - Performance to Continue

If circumstances of Force Majeure occur, the Contractor is obliged to continue so far as reasonably practicable, but if it is necessary to take any special measures, he shall only do so as directed by the Engineer. If he acts other than under the Engineer's direction, he will lose his right to compensation of the additional costs incurred under Clause 44.5

Clause 44.5 only refers to "additional costs". The Contractor's right to normal payment for work executed - irrespective of whether that work is lost or damaged as a result of the Force Majeure - is covered under Clause 44.6.

Clause 44.7 - Termination in Consequence

If the situation continues for a period of 182 days, either party may give 28 days notice to the other party to terminate the Contract, and provided the situation is still continuing at the end of these 28 days, then the Contract shall terminate.

The Engineer cannot stop the Contractor exercising his right under this Clause simply by granting him an Extension of Time to cover the delay.

In such cases, Clause 44.8 sets out the amount of compensation due to the Contractor - and you will note that he is compensated for all work done and all costs incurred as a result of the termination. Note, however, that it is only cost - there is no entitlement to profit - and the intention is that the Contractor should not lose out as a result of the termination.

Clause 44.9 - Release from Performance

The law will govern the Contract, and this Clause states that where the provisions of the law go beyond the provisions of the Contract in releasing the parties from performance, then the Contractor's entitlement to payment shall be the same as if the Contract had been terminated in accordance with Clause 44.7 of the Contract.

Clause 44.10 - Force Majeure Affecting Engineer's Duties

If the Engineer is prevented from fulfilling his duties under the Contract due to circumstances of Force Majeure, then the provisions of Clause 44 shall apply - in other words, such a situation shall be considered as circumstances of Force Majeure under the Contract.

24.3 Default of Contractor (Clause 45) and of Employer (Clause 46)

Default - or failure of either party to fulfil an obligation under the Contract - can, as with the Red Book, range from a minor breach to a serious and significant breach.

If we look at some examples:

There is an obligation to follow a given procedure - e.g., in the submission of Claims (clause 34) and Time Extension requests (Clause 26).

If the Contractor fails to comply with the procedure he risks losing his rights under the Contract.

Then we have obligations where the corrective measures in the event of failure are written into the Contract - e.g., late completion (Clause 27.1), late payments (Clauses 33.6 and 33.7), failure to rectify defects, etc. (Clause 30.5).

In these cases, the consequences are as described in each specific clause.

And then we have the serious breach, where there is no built-in solution, and the other party can take extreme measures - e.g. termination.

Such situations are covered by Clause 45 where it concerns default by the Contractor, and Clause 46 where it concerns default by the Employer.

Clause 45.2 - Contractor's Default

This Clause defines the circumstances of serious default which entitle the Employer, after giving the Contractor 7 days notice, to terminate the Contractor and expel the Contractor from the Site.

The circumstances are :

- (a) If the Contractor has failed to rectify a breach after having been required to do so by the Engineer under Clause 45.1.
- (b) Assigns the Contract or sublets the Works without approval.
- (c) Goes bankrupt.

Under Clause 45.3 and 45.4 the Engineer is required to determine the value of the Works as soon as possible .. and prepare a payment certificate.

However, the Employer is not obliged to pay the amount due until the Works have been completed - by him or another contractor - and, before paying, he is entitled to recover the extra costs, if any, of completing the Works, i.e., the difference between the actual costs of completing and what he would have had to pay the Contractor for completing.

Presumably, if the Employer chooses not to complete the project, the Contractor is entitled to receive payment within 28 days of certification, or perhaps within 28 days of the Employer deciding not to complete, but the Yellow Book is silent on this point.

Moving on to default of the Employer.

Clause 46.1 - Employer's Default

The circumstances which entitle the Contractor to terminate the Contract, after giving 14 days notice to the Employer (and the Engineer) are :

(Note the difference between the 14 days here and the 7 days in Clause 45 - but remember that the 7 days is following the warning in Clause 45.1. Here there is no previous warning built in.)

- (a) Failing to pay the Contractor within 28 days of the due date.
- (b) Interfering with any certificate issued by the Engineer.
- (c) Going bankrupt.
- (d) Consistently fails to meet his obligations.
- (e) Appoints a new Engineer without the Contractor's consent (ref: Clause 2.8).

Clause 46.3 - Payment on Termination

In these circumstances, the Contractor is entitled to be paid on the same basis as if the Contract was terminated due to Force Majeure (Clause 44.8), plus any loss or damage which the Contractor may have suffered in consequence, up to the limit stated in the Preamble.

25. PREAMBLE AND PART II SPECIAL CONDITIONS

25.1 Introduction

This paper covers the Preamble, which is the first document in the Yellow Book, as well as Part II Special Conditions. These documents have been developed from what was, in the previous edition of the Yellow Book, a single document: Part II Conditions of Particular Application.

25.2 Preamble

The Preamble forms a part of the Conditions, as is evident from the definition of Conditions given in Sub-Clause 1.1.2. Indeed, the Preamble is an essential part of the Conditions as without it, or if it is incomplete, Part I General Conditions cannot be applied properly.

Although Part I is intended for universal use, there are a number of places in the document where the details must be particular. Obvious examples are the names of the Employer and the Engineer and a statement of the applicable law. Others arise because of the difficulty, or in some cases the impossibility, of writing Clauses that would have universal international application; for e.g., working hours, terms of payment and details of insurance requirements.

Rather than leave these points to be picked up by the draftsman of each individual contract, the relevant sub-clauses now bear a reference to the Preamble. In the Preamble, these sub-clauses are all listed, together with a note indicating the information that is required to complete the meaning. Some of the notes require the addition of only a single word or figure to make them complete, for example Sub-Clauses 1.1.35 - Time for Completion. In other cases considerable detail may be necessary, for example Sub-Clause 47.1 - Changes in Cost. Where the detail cannot be inserted in the space provided, it should be given on a separate sheet and attached as a schedule to the Preamble.

It is intended that the Preamble should be completed by the Employer, or the Engineer on his behalf, before the documents are issued to tenderers. If any items is left for tenderers to fill in, the subsequent evaluation and comparison of tenders may be difficult and possibly unfair.

25.3 Part II Special Conditions

Whereas a completed Preamble is essential for the Conditions to be completed, a Part II is not. Although it would be rare for a Contract to have no Part II entries at all.

Part II is divided into two Sections, A and B. Section A deals with points where the possibility of an alternative to the Part I provision is foreseen. In these cases the wording of the relevant Sub-Clause in Part I anticipates the possibility by stating "or as may be stated in Part II" or words to that effect. Section B is intended for additional provisions necessitated by the type, circumstances or locality of the work or the law of the country where the work is situated.

Part II Section A

It should be borne in mind that some of the changes in Part I that can be effected by means of Section A may increase the Contractor's costs and will consequently be reflected in his Tender sum. Prolongation of the Defects Liability Period under Sub-Clause 1.1.11 is a case in point and any increase should not be made without careful consideration of the advantages to the Employer of the longer period.

Other changes may reduce the contractor's costs and have a beneficial effect on his Tender. The provision of facilities under Sub-Clause 8.1 and equipment under Sub-Clause 14.1 are examples. However, before undertaking such responsibilities the Employer must satisfy himself that he will be able to meet them in regard to the time and quality specified.

If the Engineer's Agreement with the Employer requires that he obtains the consent of the Employer before exercising any of the duties imposed upon him in the Conditions, it is important that the entry under Sub-Clause 2.1 is consistent with these requirements. The Contractor must be made aware at tender stage if, in some instances, the Engineer is not authorized to act on his own violation as the Conditions indicate. Should the fact not be disclosed in advance and only become apparent during the course of the Contract, the Contractor could raise serious objections.

On international contracts a Performance Security is commonly required. In this case, not only must Sub-Clause 10.1 be completed, but it is desirable that the form of security that the Employer will require is annexed to the Conditions when the tender documents are issued. Forms differ widely and it is right for the Contractor to know in advance what he will be expected to provide.

Despite what was said earlier to the effect that there can be circumstances when Part II is not essential, there is at least one borderline case which it could be argued justifies inclusion in the Preamble. It relates to Sub Clause 33.8. If the terms of payment entered in Sub-Clause 33.1 of the Preamble involve payments according to quantity supplied or work done, Sub-Clause 33.8 of Part II must include a statement of the provisions for measurement. If this is not done the Contract is incomplete.

Part II Section B

There is no restriction on the scope of Section B. In addition to new Clauses covering particular requirements, Section B can be used to alter or even delete Clauses in Part I. The facility to change Part I should be used sparingly, if at all. Any changes made will be studied searchingly by tenderers to establish whether, in addition to the change itself, there are other implications in reaction to the overall terms of the Contract.

Additional Clauses are frequently added in Section B covering such matters as labour regulations, including other points relating to labour which may be affected by local custom or law. It may also be necessary to add Clauses dealing with confidentiality of details, joint and several liability where the Contractor comprises more than one firm and, in the case of a contract funded by an International Financial Institution (an IFI), any restrictions on the countries in which expenditure may be made.

25.4 General

The division of what, in the Second Edition of the Yellow Book, was a single document - Part II into what is now in effect three separate sections has advantages. It is now evident at a glance what is essential - The Preamble; what is optional - Part II Section A; and what is open for individual choice - Part II Section B. Also, the way in which the Preamble and Section A are set out allows the draftsman to complete by simple insertions on the printed forms, other than in the few cases where the degree of detail may lead to attaching a separate schedule. Only Section B, remains as it must by its nature, an invitation to insert some entirely new material.

Yet the diversity of documents has its drawbacks and its dangers, if not used intelligently. Until the user becomes so familiar with the documents that he knows instinctively where to look, he may find he needs to search in four places instead of two before he is satisfied that he knows everything related to a particular topic. This risk emphasizes the need to complete the Preamble and Part II Section A as printed in the Yellow Book. Any effort, however well intentioned, to add supplementary details in either case may lead to something being overlooked or to other misunderstandings. At this point it is useful to remember Sub-Clause 5.3 Priority of Contract Documents. But, at the same time, Sub-Clause 5.4, Documents Mutually Explanatory, where the consequences of ambiguities and discrepancies are set out, should not be overlooked. A great responsibility rests upon the contract draftsman to maintain consistency between all parts of the Conditions.

26. DISPUTES AND ARBITRATION

26.1 Introduction

In discussing resolution of disputes in connection with the Red Book (Clause 67) the emphasis is on the steps which precede arbitration - namely, the Engineer's decision and the attempt at amicable settlement. The discussion here, in connection with the Yellow Book (Clause 50) and its similar but not identical approach to dispute resolution, will focus on the arbitration process itself.

Preliminary it is noted that the Yellow Book Clause has no equivalent provision to the intermediate step of the amicable settlement attempt found in the Red Book at Sub-Clause 67.2. This is not a major distinction but rather a procedural one. The parties, after all can always agree to settle their differences. The Red Book encourages an effort in that direction specifically - in fact, it mandates it at Clause 67. While the Yellow Book does not do so, and allows immediate "appeal" to arbitration, this does not preclude resort to settlement efforts, at any time. In fact in the Yellow Book, in the provisions concerned with the Engineer at Clause 2, passing reference is made to the concept of amicable resolution, without, however, interjecting the mandatory time period of Red Book Clause 67. The parallel in procedure, progressing from initial claim through arbitration can be seen in comparing Clauses 53 and 67 of the Red Book with Clauses 34 and 50 of the Yellow Book.

26.2 Arbitration

Litigation and arbitration are adversarial and result in a decision as to right or wrong, sometimes deciding on a winner and a loser. The essence of arbitration is that it can normally only arise out of the agreement of the parties; it is consensual as contrasted with litigation which is based upon the force of law. As approaches to dispute resolution, litigation and arbitration are distinct from other alternatives which may be described as non-adversarial or aimed at reaching a settlement between the parties in which there is no winner or loser.

Although adversarial, arbitration for a variety of reasons has come to be recognized as a practical and businesslike method of resolving disputes - particularly in international construction. The FIDIC forms have included arbitration provisions from their inception. Where competition might otherwise be inhibited by uncertainty as to the law or the judicial system of a particular country, arbitration can have the effect of "de-localizing" or internationalizing business relationships so as to provide greater predictability.

26.3 The Nature of Arbitration

Arbitration is in various respects both similar to and different from litigation.

Similarities :

- Factual disputes and fact determination
- Adversarial system
- Contract and legal interpretation and application
- Independent trier of facts
- Procedural system including commencement notice; narrowing of factual and legal issues via pleadings and discovery.
- Enforcement procedure

Differences :

- Role of arbitrator is flexible - brings technical expertise to the trier of facts (as opposed to the "clean slate").
- Informality coupled with ad hoc or tailored procedural approaches
- Private nature of arbitration
- Unlikely availability of consolidation
- Limited judicial review
- Ability to regulate the arbitrators' authority
- Apparent costs of arbitration can be offset by speed

26.4 The Arbitration Clause

Basic Features :

- (a) Define scope : All or some disputes; part of a contract? A broad clause is advantageous, and this is what is utilized both at Clause 50 in the Yellow Book and Clause 67 in the Red Book.
- (b) Define procedure : By reference to the Rules of the ICC (International Chamber of Commerce), the procedure for the conduct of the arbitration is established in Part I of both the Red and Yellow Books. However, FIDIC recognizes that there are other institutions which conduct arbitration and use well-recognized rules. Part II of the Red Book refers to the rules of UNCITRAL as a possible alternative to ICC. Part II of the Yellow Book simply reminds that the rules should be specified in the Clause.

26.5 Arbitration Rules Summary Comparison

	<u>Commence</u>	<u>Tribunal Selection</u>	<u>Discovery and Hearing</u>	<u>Award and Decision</u>	<u>Review</u>
AAA	Short demand	Proposed list selection	Assumed informal	Award, no reasons	None usually
ICC	Notice, "Terms of Reference"	ICC selection no agreement	Not encouraged	Reasons, review by "court"	Limited
UNCITRAL	Notice, may include statement of claim with annexed documents	Parties agree or appointing authority or Permanent Court of Arbitration	No request, document exchange may be compelled	Reasons stated	Limited

27. OTHER FORMS OF CONTRACT DESIGN AND BUILD-TURNKEY

27.1 Definitions

First of all, it is desirable to establish common ground on the meaning of "Design and Build" and "Turnkey". To some, the terms are synonymous. To others, they have different meanings. Are they different? If so, what are the differences?

FIDIC does not have a model document for either form; so, it is necessary to look elsewhere. (Further reference to FIDIC's position will be made later in this paper.) A number of manufacturers and contractors have their own forms which they advocate when submitting an offer. A few national bodies have produced model forms, but as far as can be established there is no internationally recognized form.

It is therefore suggested that the matter is reviewed from first principles and common usage. The French have an expression "clef a main" which translated literally means key in the hand. That is the original concept of a Turnkey Contract. The Client wanted some facility and accepted an offer from a Contractor to construct it. When it was finished the Client paid the Contractor and the Contractor handed over the key of the door.

Unless the Client had defined very closely what he wanted, he sometimes found on unlocking the door that he had not got quite what he had expected. Unsophisticated Clients with little or no in-house expertise could suffer severe disappointment or even hardship. That is not to say that the Contractor was at fault. The problems arose from a lack of common understanding and the absence of precise documentation.

What is described above is, in a crude form, a Turnkey Contract. Fortunately, such experiences are rare today. Clients recognize the need to check offers carefully in order to satisfy themselves that their wants have been understood.

Those Clients who appreciated that they did not have the necessary experience to define their needs in technical terms began to look for assistance. So the practice developed of the Client retaining the services of an adviser to help in formulating his intentions and in setting them down in unambiguous terms. In this description, it is possible to discern the role of the Consultant and the recognition of the need for a Specification.

The next step was to retain the services of the Consultant during the execution of the project to check that the work was executed in accordance with the standards required and to deal with any problems which might arise. With the award of the Contract the Consultant became the Engineer. For the Engineer to have authority during the execution of the work, his duties had to be identified in the Contract and the Contractor had to be aware of these duties and to know what the obligations he had to enable the Consultant to carry them out.

What has just been described is a Design and Build Contract. The Contractor has responsibility for designing the work as well as executing it and the Engineer has certain duties on behalf of the Client or Employer and often has the duty to act impartially in a number of matters.

It cannot be argued that these definitions of the two types of Contract are universally accepted, but they are in common use and will be assumed to have the meanings described above in the rest of this paper.

27.2 Specification

For virtually any undertaking, it is necessary for the Client to specify what he wants. The degree of detail will depend on the type of work. Many processing plants are so complicated that most Clients will be very dependent on the manufacturer for the layout and design. While there are Consultants experienced in these fields, it is unlikely that they would seek to become involved in the detailed design. Where the Consultant can provide substantial assistance to the Client, particularly a Client embarking on a type of development for the first time and unfamiliar with the technical aspects, is in carrying out a study of the demand for the end products of the plant and in helping the Client to determine the capacity of plant required.

Whether the study is carried out with the help of a Consultant or not, the Client's needs must be specified. The specification is required by the manufacturer or Contractor, so that he knows what is required and can price the work and it is required by the Client, so that he is in position, if something goes wrong, to require the Contractor to rectify matters and is not obliged to pay for facilities which have not been provided or which do not operate as expected.

Processing plants are frequently constructed under Turnkey contracts. The Client's involvement during construction is limited, but progressively as work proceeds he will require to be kept advised and to be entitled to watch the work and to become familiar with it, so that when it is completed he will be able to operate and maintain it. Usually the Contract will include an obligation for the Contractor to train a number of the Client's staff and labour in the use of the plant. Another form of contract used, is Build, Operate and Transfer (BOT) where the manufacturer or Contractor designs and builds (sometimes also arranging the finance), operates for a stated period and ultimately hands over to the Client. There a number of variants of this form.

Where the work is of a less sophisticated nature, the Client or his adviser tends to specify in more detail and to get more deeply involved. For types of project where technology is constantly changing, as new methods and processes are developed, the intended life of the project may be short, but for some heavy civil engineering works a life of fifty years is often the minimum. With this end in view, the quality and durability of construction is increasingly important and detailed standards are usually specified.

If a facility such as hospital is required, it is not enough just to state the number of beds. A decision has to be made as to the type of hospital, the range of treatment that it will provide, the number of operating theatres, whether it will include a casualty department, the list can be lengthy. Then there is the question of quality and design of equipment. Even a fairly simple item like a bed can vary in the degree of sophistication. Also design can vary from one country to another and unless types are specified, items can prove almost unrecognizable to those trained with different equipment.

With the increase in concern about detail, the role of the adviser or Consultant becomes more important. Provision of a full specification not only ensures that the Contractor will be under obligation to provide exactly what the Client wants, but it will make the comparison of offers easier than where each tenderer offers his own concept.

Following on from this point, it becomes evident that for the Client to be satisfied that he is getting what he is paying for, he needs an Engineer to follow the execution of the work. The Engineer, in his role does not design, but he checks that the Contractor conforms with the Specification.

Both Turnkey and Design and Build Contracts are normally basically lump sum contracts, but nevertheless arrangements for matters of time and payment must be included and often provision for

variations, settlement of disputes and even claims is made. In the sections which follow, some of the factors which affect these issues will be explored.

27.3 Time

When the Client invites offers for a project, he will usually state a time for completion or he will request tenderers to state a construction time. In either case, the Client may include a weighting, so that different period of construction can be compared. Linked with time may be a penalty or liquidated damages to afford some degree of protection for the Client if the Contractor fails to complete by the due date. It is usually the practice to define completion in such cases as readiness to operate beneficially for the purposes for which the facility is intended, or words to that effect. Only with such provisions is a Client protected against a Contractor arguing that a project is 99.9% complete and hence he is entitled to release of his security, when the missing 0.01% prevents the project from fulfilling its intended function.

27.4 Payments

Payment must be related to performance and not to time. For one reason or another, progress may not conform with the agreed programme and the Client must not be obliged to pay for work which had not been done. As Turnkey and Design and Build Contracts are generally lump sum contracts, it is necessary to include in the documents a basis for interim payments. There will not be a Bill of Quantities, but a rough breakdown of work can be given to be used solely for the purposes of interim payments.

For example, a building can be broken down into: foundations; floor slab; superstructure; roof slab; cladding; services; provision of plant; finishes; external works; clearing the Site. There are many alternatives and the choice will depend on the type of project.

Consideration should also be given to whether there should be retention or a retention guarantee. The decision will depend to a certain extent on what other safeguards for the Client are included in the Contract. Often an advance payment is provided to assist the Contractor meet his mobilization costs. In this case, the Client should require a guarantee. All these matters must be clear in the documentation.

27.5 Variations

Although, as stated before, Turnkey and Design and Build Contracts will normally be for a lump sum, consideration should be given as to whether it is likely that variations in the scope of work may be required. For example, during the execution of the work, the Contractor may propose the incorporation of new technological developments or the Client may decide that the output should be altered to take account of revised estimates of demand. Variations disrupt the smooth execution of work and hence cause additional expense. Consequently they should not be undertaken lightly. Nevertheless, it is often prudent to include in the Contract a description of the basis for calculation which will be used if variations occur.

Another form of variation for which provision is sometimes made is of price. In other words, the inclusion of some protection for the Contractor against the effects of inflation during the construction period. The monetary sequences of inflation over a long construction period can be severe and is often unquantifiable without any precision. If the Contractor is expected to include the cost in his initial offer, he will be forced to put in a significant sum to protect himself. The Client may wish to carry some or all the risk and to make appropriate provision in the Contract.

27.6 Settlement of Disputes

Although relatively few Contracts lead to differences of opinion so serious that they cannot be settled amicably between the parties, it is good practice to specify the means for settling disputes in case the need arises. Arbitration is a means commonly used and if that is to apply it is best, on international work, to specify an international procedure, such as ICC or UNCITRAL. There are other methods of dispute resolution and the subject is covered more fully in another paper. The important thing is to cite a means which will give confidence to both the parties.

27.7 Claims

Some Turnkey and Design and Build Contracts make no mention of claims, leaving the Contractor to meet all costs of whatever nature from whatever cause. As with variation in price, mentioned above, it is for the Client to determine whether he wishes to bear some of the risk.

Before taking a decision, the Client or his adviser should assess the likelihood of unforeseen circumstances or conditions arising which may affect the cost of executing the work. The more difficult it is to judge in advance what may occur, the greater the argument for the Client bearing some or all of the risk. If he decides to do so, the Conditions of Contract must reflect the position.

The list of points given above is not exhaustive and each time it is proposed to adopt a Turnkey or Design and Build form, the Client must decide whether there are any special terms which he wishes to include in the Contract. His decision will be influenced by many factors, such as type and location of work, climate, ground conditions and source of funds.

27.8 Consulting Engineer

Turnkey and Design and Build Contracts provide two possible roles for a Consulting Engineer. He may be adviser to the Client or he may be designer working as part of the Contractor's team. For professional reasons, he should not attempt to fulfil both roles, as a conflict of loyalties would arise.

A Consulting Engineer working with a Contractor should remember that a Turnkey or Design and Build Contract generally imposes on the Contractor the obligation of fitness for purpose. The Contractor may seek to impose the same obligation on the Consulting Engineer acting as his designer. Fitness for purpose is a more onerous obligation than that of due care and diligence which a Consulting Engineer undertakes when working in his more usual role for a Owner. Where the Consulting Engineer is contemplating working for a Contractor on a Turnkey or Design and Build Contract, he would be well advised to discuss his position with his professional indemnity insurers before entering into a commitment.

27.9 FIDIC's Position

Earlier in the paper it is stated that FIDIC does not have a model form for a Turnkey or Design and Build Contract. FIDIC is conscious of the need for such a form and has set up a Task Force to review the position, study various forms in use and to produce a model document. It is too early to indicate what form the document will take, but it is anticipated that it may draw upon material from the Red and Yellow Books, as well as including new material appropriate to meet the particular requirements. The model form will certainly include a role for the Engineer and is likely to be designated a Design and Build Contract.

28. LUMP-SUM (FIXED PRICE), ETC.

28.1 Introduction

From the particular standpoint of how payment to the construction contractor is made, as compared with such contract variations as whether design is included, it can be said that in a broad sense the payment arrangements for all contracts fall into two categories: They are either (i) fixed price (or "hard money") or (ii) cost-reimbursable. There are many varieties within these categories and there can be hybrids.

28.2 Fixed Price

As discussed earlier, the FIDIC Red Book is a remeasurement form of contract. It is aimed at civil works and based upon a Bill of Quantities prepared prior to the issuance of documents to the potential tenderers for them to price and total in arriving at their tender sums. In a sense, that tender sum is tentative or provisional (but "Provisional Sum" has a separate meaning!) or projected because the total finally to be paid to the Contractor is only arrived at as the work is executed and the items performed are remeasured to determine their actual quantities. Since the final price is therefore not fixed at the outset of the contract, in one sense we cannot call the Red Book form a fixed price contract. However, since the obligations of the Employer to pay are based upon the unit prices tendered for the items of the Bill of Quantities, we can say that the payment obligation is fixed and does not vary even if the costs to the Contractor do vary. This feature gives the Contractor the incentive to plan and execute the work as efficiently as possible to reduce that cost and increase his profit.

The Contractor whose planned execution and cost control (i.e., his management of labour, equipment and material procurement) results in the lowest tender price submitted to the Employer wins the award.

28.3 Lump-Sum

A lump sum contract, which provides an immutable bottom line sum for the performance of the total contract can be used, of course. For civil works, where the quantities of rock, earth, water to be pumped, etc., are variables, this is hardly feasible, even if there has been an extensive boring programme and very careful engineering. A lump-sum contract becomes a gamble, in civil works, meaning that the probabilities are that the Contractor will end up with a windfall or a loss. The remeasurement form of contract with its estimated quantities is more businesslike and will foster healthy competition. Self-evidently, the fixed price aspect requires that the tender documents be fully definitized - that is the plans and specifications are as detailed as possible. Thus, the two basic characteristics are that the design is complete and that the Contractor takes the risk that he must complete for a fixed sum (after measurement adjustments). For the Employer, this certitude is also accompanied by the fact that the fixed price contract, in either a Red Book format or absolute lump-sum, is less burdensome to administer, as compared to the cost-type contracts that will be briefly discussed, because the Employer's Engineer needs only to ensure that the Contractor meets contract requirements.

28.4 Other Cost-Reimbursement Contracts

Cost-reimbursement type contracts are those in which the Employer agrees to pay the allowable performance costs of the Contractor, plus a fee.

The use of a cost-reimbursement type of contract format may be made for a variety of reasons such as a desire to start work promptly when plans are incomplete or the anticipation of cost escalations of a magnitude which may preclude establishing firm prices.

To provide some protection to the Employer (and its bank), a frequent feature of cost-reimbursement contracts is the requirement of a guaranteed maximum price being agreed. A variant of this is the target price contract.

In the case of a target price contract, the target may be agreed upon with a proviso as to the amount of the difference between the target and the actual price, i.e., penalizing the Contractor in the sum of all or part of the excess price over the target or rewarding the Contractor to the amount, or fraction thereof, of the price saving achieved below the target.

28.5 Hybrid Forms of Contract

Within the category of fixed-price contracts there are varieties which shift particular risks to the owner:

- (a) Fixed-Price with Economic Price Adjustment (FPEPA) - This form may be used when there is serious doubt concerning the stability of market or labour conditions during extended contract performance.
- (b) Fixed-Price Incentive Contract (FPIC) - This form of contract can adjust profit and establish final price by application of a formula based on the relationship of total final negotiated cost to total target cost with, frequently, a fixed price ceiling.
- (c) Fixed-Price Award Fee Contracts (FPAF) - These are used where it is desired to enhance contractor performance in terms of quality, timeliness, ingenuity, etc., are more often associated with high tech or fast-track projects.

29. TERMS OF APPOINTMENTS OF CONSULTANTS

29.1 Development of the Document

Brief reference was made in an earlier paper to the International General Rules of Agreement between Client and Consulting Engineer (IGRA) documents published in the period 1960 to 1970. There were three such documents:

- * IGRA 1979 Design and Supervision of Construction Works (D&S)
- * IGRA 1979 Pre-Investment Studies (PI)
- * IGRA 1980 Project Management (PM)

In each case the date of the latest (and last) edition is given. These documents have been used extensively during the last ten years, particularly IGRA D&S.

However, with the passage of time, it became evident that a review of the documents was due. The decision was taken to prepare a single document to provide general rules common to most consultancy agreement. Using IGRA 1979 D&S as a basis the review was carried out in three stages:

- (i) To edit the document into simpler language and a more logical order
- (ii) To give it a format more consistent with the style adopted by FIDIC for the Red and Yellow Books
- (iii) To refine the provisions for liability, insurance and indemnity.

The outcome was the publication in June 1990 of the Client/Consultant Model Services Agreement 1990 which has been dubbed for short the "White Book" because of the colour of the cover. Seminars to launch the White Book were held in London and Copenhagen in October 1990.

As far as possible the White Book reflects the following underlying precepts:

- * It should be capable of wide application
- * Its language should be simple, avoiding legal phrases associated with particular jurisdictions, and therefore be capable of reliable translation
- * It should recognize the realities of international commerce and take account of the circumstances and difficulties peculiar to consultancy assignments.
- * It should promote conscious decisions on risks and responsibilities to be covered other than the merely technical content of the assignment.
- * It should present a fair division of risk and responsibility between Client and Consultant, encouraging cooperation and mutual trust and avoiding promotion adversarial attitudes.

It will be appreciated that with the issue of one document for all types of assignment some of the detail included in the IGRA documents which the White Book now supersedes has been omitted. In order to assist users in the preparation of suitable wording to cover particular requirements, FIDIC intends to issue later this year, Notes on Documents for Consultancy Agreements. The Notes will indicate what material may be needed to complete the commercial, non-technical part of an agreement

for particular circumstances and types of assignment and will include example wording for various situations.

29.2 Structure of the Document

The White Book contains Conditions Parts I and II. Part I comprises Standard Conditions and Part II Conditions of Particular Application. The text of Part I is intended to be included in an agreement as printed, but it should be noted that in order to be complete it requires certain specific facts and figures to be added in Part II. Part II is divided into two sections A and B. Section A lists those Clauses from Part I which require specific additional information for the Conditions to be complete. Section B provides for Additional Clauses to be added to meet the requirements of the particular agreement. In this respect the White Book follows the principles adopted in the Red and Yellow Books.

It is not evident from the White Book to what extent is intended that Part II will be completed by the Client before issuing invitations and what will be left to be filled in by the Consultant submitting the proposal. It is presumed that some guidance will be offered in the Notes and in any event it is a point to be borne in mind when terms of reference are prepared prior to issuing invitations.

The White Book also includes a form of Agreement. From this form it is apparent that three appendices are envisaged:

Appendix A - Scope of Services

Appendix B - Personnel, Equipment, Facilities and Services of others to be provided by the Client

Appendix C - Remuneration and Payment

The Agreement indicates that further appendices may be added if required.

It will be noted that although the form of Agreement refers to the Letter of Acceptance, the Conditions Parts I and II and the Appendices, it does not list the proposal (the Consultant's offer). This omission is because experience has shown that proposals are frequently so amended during discussions prior to award that it is better to incorporate the terms finally agreed. There is provision for doing so, if not included in the Letter of Acceptance, by means of an addition in Part II (Section B). Sub-clause 1.(vii), which gives the definition of the Agreement, provides the link by including the words "or otherwise as specified in Part II".

Where additional documents are included in the Agreement, it is important that all bear a date and that any changes made in the documents are also dated.

At the beginning of the White Book there is a Foreword which contains useful explanatory information, much of which is also given in this paper, but it is not intended to be incorporated into an Agreement. Attention is drawn to the statement in the Foreword that English is considered by FIDIC as the official and authentic text for the purpose of translation and, in this connection, it should be noted that FIDIC has expressed the intention that the White Book will be translated into French and German.

29.3 General Points

During the course of the preparation of the White Book valuable comments and suggestions were made by the World Bank, the Asian Development Bank and the Joint Committee of the Arab Funds but the ultimate responsibility for the White Book rests with FIDIC.

Unfortunately, in the printing of the White Book a few errors crept in. Those which have come to light have been incorporated in the text.

Before proceeding to analyse some of the Clauses of the White Book, which will be done in subsequent papers, there are a few points which are worthy of note.

- * The words "Consulting Engineer" which were used in IGRA have been replaced by "Consultant". This change recognizes that on occasions the party involved may not be a firm of engineers, although it is anticipated that in most cases it would be, and also that many Clients prefer to use the word "Consultant". The latter has the added advantage that the document may be readily used by other discipline.
- * The White Book as written is not suitable for the circumstances where the Consultant has the responsibility of fitness for purpose, as might be the case if the Consultant was participating with contractors in a joint venture. The obligations of the Consultant as specified in the White Book will be discussed in a later paper.
- * There is nothing in the White Book regarding the period of validity of a proposal. Presumably it is a matter which will be discussed fully in the Notes. Further references to the period of validity are included in other papers.

However, the financial consequences and the effects on a firm's staff dispositions if an open ended proposal is made, possibly at fixed prices, and is not accepted or rejected for months on end can be so serious that it does no harm to touch on it here. Of course, in many invitations the terms of reference will clarify the position, but it is not a matter to be forgotten.

- * The importance of the Consultant taking out insurance must be emphasized. Often the Client will require evidence that insurance has been arranged and will want to know the extent of it. Whether he does or not, the Consultant must in his own interests take out appropriate cover.
- * It has been advocated that the EDF nomenclature should be adopted for the documentation of the various stages of a proposal, namely:

Tender Dossier for the documents issued by the Client,
Tender Documents for the proposal, and
Contract Documents for the documents comprising the award.

At one time, it was usual if a Consultant was appointed to carry out a feasibility study for a project for the same Consultant to be appointed, virtually automatically for the following stages of design and supervision of construction. On occasions the Consultant was appointed for all stages at the start. That is no longer necessarily so and the practice of inviting separate proposals for each stage of a project is increasing. The Consultant who carried out the earlier stage or stages is normally invited to submit a proposal for the next stage, but others are also invited.

This change in practice is argued to encourage innovative thinking by consultants and to be in the interest of Clients. FIDIC advocates the retention of the same Consultant for all stages, particularly for design and supervision of construction. If designs prepared by one Consultant are supervised by another and problems arise, it may prove difficult to allocate responsibility. This risk is aggravated where Consultants of different nationalities are involved, as the degree of detail expected for tender documents varies from one part of the world to another. There is an argument for insisting that where different Consultants are used for design and supervision of construction both should bear responsibility for the design. While that may afford the Client some protection, it results in cumbersome and time consuming arrangements which are likely to nullify the alleged benefit the Client gains from having competition at each stage.

30. CLIENT-CONSULTANT MODEL SERVICES AGREEMENT ANALYSIS CLAUSES 1 TO 20 (FIDIC WHITE BOOK)

30.1 Introduction

In this paper and the one which follows the clauses of the White Book will be considered. Some of the clauses will only be discussed briefly, others will be analyzed in some detail; the length of commentary for each clause is not intended to be a measure of its relative importance.

The headings, subheadings and clause numbers which follow are taken directly from the White Book.

30.2 Definitions

Sub-Clause 1.(i) defining "Project" is the first of a number of instances where it is clear that an entry in Part II is necessary for the Conditions to be complete. Separate references will not be made in this commentary to each case where a Part II entry has to be made. It is important for users of the White Book to satisfy themselves that Part II is completed in all respects.

Sub-Clause 1.(iii) defines "Works". Works in the White book are consistent with "Permanent Works" in the Red Book and will be executed by a Contractor and not by the Consultant. The only reference to Works is in Clause 42, but the definition may be useful when specifying the extent of Services in Appendix A.

"The Consultant" is referred to in Sub-Clause 1.(v) as an independent professional firm. If the Consultant is a person or a joint venture, an appropriate addition will be necessary in Part II.

"Agreement" is defined in Sub-Clause 1.(vii). In this case an entry in Part II is only necessary if the documents comprising the Agreement are different from those listed in the definition.

Sub-Clauses 1.(viii) and 1.(ix) define "day" and "month". In Part I only days are used and it is recommended that period of time should generally be stated in multiples of seven days, as is the case in the Red and Yellow Books. Month is defined in anticipation that it will be used in Appendix C when it comes to referring to frequency of invoices and to staff time.

Sub-Clause 1.(xi) "Agreed Compensation" will only apply if Part II does define additional sums which are payable under the Agreement. This point is emphasized here, as has been done under "Agreement" above, because these Part II entries arise only if the particular Contractor requires and not every time as under "Project".

30.3 Interpretation

Sub-Clauses 2.(i) and (ii) are consistent with the practice adopted by FIDIC in other documents, such as the Red Book.

Sub-Clause 2.(iii) establishes the precedence of the various documents comprising the Agreement. The wording conforms with the usual principles, but where documents have been amended it is important that the date of each amendment is given.

30.4 Obligations of the Consultant

(a) Scope of Services

The Clause establishes that the Scope of Services to be performed by the Consultant will be as stated in Appendix A, but does not reveal whether the Appendix is to be completed by the Client or the Consultant. In practice, the Scope is likely to be agreed between the two parties in discussion when the Consultant's proposal is under consideration.

(b) Normal, Additional and Exceptional Services

This Clause too relies heavily on Appendix A and also involves Clause 28 which will be covered in the next paper.

(c) Duty of Care and Exercise of Authority

Sub-Clause 5.(i) states that the Consultant is required to exercise reasonable skill, care and diligence. Where the Consultant undertakes the duty of fitness for purpose, Part II Section B must include amendments to this Clause and also to the Liability and Insurance Clauses.

Sub-Clause 5.(ii) is intended to cover the situation where the Consultant is required to undertake the duties of the Engineer under a Contract for the execution of Works by a Contractor, such as the Red Book. Attention is drawn to Sub-Clause 2.6 of the Red Book and to other Clauses and Sub-Clauses such as 2.1 and 51.

30.5 Obligations of the Client

(a) Information

The wording appears a little tortuous, but it is clearly in the Client's interests as well as the Consultant's that the latter should be in possession of all available information relating to the Services he has to undertake to perform.

(b) Decisions

Again, the arrangements are routine, but it is convenient for the position to be clear.

(c) Assistance

This Clause is another where the cooperation of the Client may be vital for the timely and successful performance of Services. It should, however, be borne in mind that the Client, even if a Government department, may not necessarily be in a position to obtain the assistance of other Government departments. Normally, much can be done by negotiation, but the Client will be subject to the law of the land, just as much as the Consultant. Where the terms of reference indicate that, for example, the Consultant will not be subject to taxes, he would be well advised to try to establish that a Government decree has determined this point. The fact that the Agreement may include a particular statement does not mean that the Client will be able to comply if it is contrary to the law.

It is worth noting that under Sub-paragraph (v), while the Client is under an obligation to assist the Consultant and the consultant's personnel to import foreign currency, it appears that the Client is only obliged to assist the Consultant with the export of money.

30.6 Equipment and Facilities, Client's Personnel and Services of Others

These three Clauses rely on Appendix B for a statement of what is to be provided. All the Clauses state, though in slightly different words, that the Client bears the cost of provision. If the terms of Appendix B are not clear, misunderstandings can arise. Questions of numbers, quality, time of availability and length of provision often occur. Differences may be due simply to a lack of common ground, but if it only becomes apparent in the course of an assignment, delays and disputes can result.

30.7 Personnel

- (a) Frequently, the Consultant will have designated his key personnel for the assignment in his proposal. If the Consultant on being awarded the work is unable to provide those persons, the Client will certainly expect the Consultant to provide persons of equal competence. Indeed, the Client may be extremely unhappy at the suggestion of substitutions. This point should be considered in relation to the period of validity of proposals. A Client complaint is that the consultants will "sell" their services based on the availability of particular, experienced engineers and then attempt a switch. The Consultant complaint is that the Clients fail to act promptly on proposals.

This Clause provides a partial remedy if the Client is unable to meet his obligations under Clauses 11 and 12, already discussed above. But, it can be a sensitive issue and, if Appendix B is not precise, problems can arise.

- (b) Representatives

This Clause is intended to ensure orderly administration between the parties. A point which it may be well to clarify before award is the degree of delegation to be granted to the Consultant's representative in the country of the project.

- (c) Changes in Personnel

The principles expressed are sensible and should cause no problems. Nevertheless, the satisfactory operation of the Clause is dependent on good relationships and mutual respect between the parties.

30.8 Liability and Insurance

The five Clauses falling under this heading are particularly important for both the Client and the Consultant. In summary, the White Book provides for reciprocal liability for breach of contract duty. The liability is to be discharged by way of financial compensation for reasonably foreseeable loss or damage, limited in amount and to the proportional responsibility in case of joint liability with others. Liability is limited in time. The consultant is indemnified by the Client against all claims out of time and which are not covered by insurance, but neither limit or indemnity apply if the Consultant is wilfully or recklessly in default.

The Consultant is expected to take out insurance cover, if available at reasonable commercial rates, for breach of contractual duty and breach of duty to the public at large all as may be required by the Client. This insurance will be at the Client's expense to the extent that it exceeds the normal cover carried by the Consultant.

Sub-Clauses 16.1 and 16.2 establish a fair balance of liability between the parties.

In Sub-Clause 16.3, sub-paragraph (ii) limits the amount of compensation by reference to Sub-Clause 18.1 which will be mentioned below. Sub-paragraph (iii) attempts to prevent a part bearing the whole liability if another or third party is partly responsible but unavailable. This sub-paragraph is particularly relevant where there may be divided responsibility between two or more Consultants retained by the Client for different stages of the project. In this case, it is important that the extent of responsibility is clearly defined in Appendix A, Scope of Services. Complications may arise where one Consultant's designs are handed over to another.

For a claim by one party to the other to be recognized, notice must be given. It is not possible to generalize about the degree of formality of the notice. In some cases, a statement that the notice is given in accordance with Clause 41 may be adequate, in others it may need to be given by a process of law. It has been suggested that, where there is no indication of the duration of liability under the applicable law, it should be relatively short and should not exceed the ten-year period seen in many jurisdictions, referred to as decennial liability.

Sub-Clause 18.1 limits the liability of the parties and it is the intention that the amount stated in Part II should be the same for both. It should be noted that any (pre-)agreed compensation will be in addition to the limit of liability referred to in this sub-Clause. The term "Agreed Compensation", used in Clause 31, is akin to the expression, but not so easily translatable or so widely applicable internationally.

The last paragraph of this Sub-Clause is effectively an indemnity.

Sub-Clause 18.2 - no express provision in Part II for the Consultant to name the amount for which he is normally insured and, unless the terms of reference are explicit, the Consultant should consider stating the amount in his proposal.

Note that in accordance with Sub-Clause 18.3, the Consultant's liability is unlimited where it does not arise in connection with the performance of his obligations under the Agreement.

Clause 19 - Insurance for liability and Indemnity requires the Client to fund any increase in cover over that normally carried by the Consultant or for the cost of such cover if the Consultant is not already insured for the particular risk. The Consultant is not entitled to reimbursement for the cost of the insurance he normally carries. As indicated in the commentary under Sub-Clause 18.2, the Consultant would be well advised to disclose in his proposal, or at the time of Agreement, the amounts, excesses/deductibles and renewal dates of his current insurance. The Client can then determine what extra cover is required.

The purpose of Clause 20 is to cover the circumstances where facilities are provided by the Client to the Consultant, but remain in the ownership of the Client.

31. ANALYSIS FROM CLAUSE 21 TO END

31.1 Introduction

The paper continues the Clause by Clause analysis of the White Book which commenced in the previous paper. As in that paper, some Clauses will be discussed only briefly while others will be considered indepth. The length of commentary for each clause should not be regarded as a measure of its relative importance of a Clause. All are significant, but merit more explanation than others.

The headings, subheadings and clause numbers which follow are taken directly from the White Book.

31.2 Commencement, Completion, Alteration and Termination of Agreement

(a) Agreement Effective (Clause 21)

The effect of this Clause needs to be considered carefully. Under many systems of law an offer or proposal and an acceptance constitute a binding agreement. That is the principle incorporated in the forms of Tender of the Red and Yellow Books. The normal position is that the subsequent execution of a "Formal Agreement" (quoting from Clause 21) is only a procedural requirement, which does not alter the fact that from the date of receipt of the Letter of Acceptance the Contract or Agreement is effective and in force. This supposition appears to be supported by the inclusion of the words "if any" immediately following the reference to the Formal Agreement.

However, in this Clause it appears that, if a Formal Agreement is required, agreement between the parties may only become effective when the latest signature necessary to complete the Formal Agreement has been obtained. Note, the words "whichever is the later". It is therefore recommended that the Consultant checks his position carefully or he could find himself proceeding in the belief that he has a binding agreement only to find weeks or even months later that it is not the case.

(b) Commencement and Completion (Clause 22)

The application of this Clause relies upon the data included in Part II. The data is foreseen to be either times (dates) or periods. Both can present problems. The successful achievement of dates is likely to be dependent upon the effective date of the Agreement, the subject of the commentary under Clause 21 above. Periods may be affected by the seasons of the year, so here too the effective date of the Agreement may have a significant bearing. This Clause is another which the Consultant would be well advised to keep in mind when preparing his proposal.

(c) Variations (Clause 23)

The wording of this Clause is extremely wide. Either party can apply apparently without limitation, but whatever is concluded has to be agreed in writing. This arrangement is sensible and avoids any risk of one party being driven to accept a variation which is not in its interests.

(d) Further Proposals (Clause 24)

In this Clause the initiative rests with the Client. It is worthy of note that the cost of preparation and submission of proposals is, in itself, an Additional Service for which payment would be due, in addition to payment for carrying out the Services themselves, if the Client accepts the proposal. It will be remembered that Additional Services is a term defined in Clause 4.

(e) Variations (Clause 25)

The principle of this Clause is fair, giving the Consultant the entitlement to payment of extra cost and to extra time if he is impeded by the Client or the Contractor.

(f) Changed Circumstances (Clause 26)

Clause 26 caters for a sort of one-sided Force Majeure situation where circumstances outside the Consultant's control affect his performance of the Services. (Force Majeure normally only applies in circumstances which are beyond the control of both parties.) Note that the Clause covers situations where the speed of performance is affected, as well as where the carrying out of Services is made impossible.

(g) Abandonment, Suspension or Termination (Clause 27)

Two separate Sub-Clauses define the entitlements of the Client and the Consultant in turn. Sub-Clause 27.1 gives the Client the absolute right to suspend or terminate the Services. It is not stated that the Client has to give a reason, though it would be normal practice to do so. In particular the Client must make clear if he is acting under sub-para (ii).

Sub-Clause 27.2 sets out the circumstances entitling the Consultant to terminate the Agreement. There is a sensible provision that the Consultant may, in the stated circumstances and without prejudicing his right to terminate, simply suspend performance. By this means the drastic and irreversible step of termination can sometimes be avoided. This course is often in the interests of both parties.

In sub-para (i) of Sub-Clause 27.2 there is a reference to "the due date for payment of an invoice". It does not appear to be clear whether the due date is when the invoice is delivered to the Client or the last day of "the time stated in Part II" in accordance with sub-para (ii) of Sub-Clause 31.

(h) Exceptional Services (Clause 28)

The entitlement of the Consultant to payment as a consequence of the application of Clauses 26 and 27, other than Sub-Clause 27.1(ii), is defined in this Clause. The Clause states that the expense to the Consultant shall be extra to Normal or Additional Services and shall be regarded as Exceptional Services. It is for consideration whether the terminology is truly descriptive, as on occasions the expense arises not from carrying out additional services, but in carrying out the services originally conceived spread over a longer period of time.

(i) Rights and Liabilities of Parties (Clause 29)

The effect of this Clause is that the accrued rights or claims and liabilities of the parties are not extinguished by Termination of the Agreement.

31.3 Payment

Clause 30 - Payment sets out the basis of payment to the Consultant for different categories of work. The need for Appendix C to be properly completed is evident.

At first sight in Clause 31 - Time for Payment, the obligation stated in sub-para (i) for the Consultant to be paid promptly has a satisfactory ring about it. However, in the light of sub-para (ii) which only imposes compensation if payment is delayed beyond the time stated in Part II, it is suggested that the reference to promptly has no practical force.

The term Agreed Compensation appears to be used in order to avoid using the word "interest" which is not an acceptable basis of compensation in some parts of the world.

Clause 32 - Currency of Payment assumes that all rates and sums of money will be first expressed in one currency, namely the currency of the Agreement, which will usually be that of the Client's country, although on occasions it may be that of the International Financial Institution (IFI) or of the Consultant's country. Provision is made for insertion in Part II A of the rates(s) of exchange applicable to the amounts(s) to be paid in other currencies.

Even if Appendix C makes no mention of restrictions on the transfer of funds abroad, a prudent Consultant should make his own investigations before submitting his proposal. The Client will be subject to the law of the country and the warranty given in sub-para (i) will only be effective if the law allows. The practical benefit of the warranty given at the end of sub-para (ii) should also be considered. If, on or subsequent to the date of the Agreement, the transfer of currency is prohibited by law, there may be little the Client can do to alleviate the Consultant's problems. If an IFI is involved in financing part of the Costs, it will probably be in a position to help in overcoming the problems.

The implication of Clause 33 - Third Party Charges on the Consultant of sub-paras (i) and (ii) is clear, either the Consultant is exempt from imposts or, if he is obliged to pay, the Client will reimburse him. The Consultant would be well advised to establish the position before submitting his offer, as it will affect his cash flow. Sub-para (iii) ensures that the Consultant will not profit from his privileged position.

Clause 34 - Disputed Invoices makes clear that a dispute over a part of an invoice is not grounds for delaying payment of the rest of the invoice.

Clause 35 - Independent Audit puts the Consultant on notice that he must keep his financial records in a form suitable for audit. Although it is not stated, the implication of the Clause is that if the audit does not support the amount claimed, the Client can demand a refund of any part not substantiated.

31.4 General Provisions

The wording in Clause 36 - Languages and Law is usual for most types of agreement and calls for no comment.

Again in Clause 37 - Changes in Legislation the wording is fairly standard, but as mentioned under Clause 32 the practical consequences of any change in legislation which restricts the transfer of currencies should be borne in mind.

Clause 38 - Assignment and Subcontracts is a normal provision in most respects, but sub-para (iii) is rather restrictive. To be obliged to obtain the consent of the Client for any variation in the terms of a sub-contract might cause delay - it is a question of degree.

Clause 39 concerns Copyright. In principle, the Consultant must be entitled to retain the power to re-use the expertise and non-confidential products of his services for the benefit of economic pricing and application of skill to future users of his services. There may be instances where the Client has a legitimate interest in retaining control of some special product, which would generally be of a unique nature, such as an artistic or architectural feature or treatment, where the emphasis would be more on denying the right to copy than on the right to reuse. In such case, the Clause should be modified in Part II to cover some identifiable exclusion.

Where sophisticated computer software is involved, the Consultant may wish to place some restriction on copying by an entry in Part II B.

Clause 40 - Conflict of Interest states the principles which would generally, in any event, govern the Consultant's behaviour.

Clause 41 reflects Notices. If the Address given for the Consultant is that of his head office overseas, it may be desirable to consider the status of his local or Site Office and whether notices should be sent to that office. But, whatever is decided, the importance of establishing and maintaining a proper system for recording delivery of notices and any other material is stressed.

Clause 42 refers to Publications. A Consultant will often wish to publish a paper on aspects of his work, particularly if innovative methods were involved, and it will generally also be in the Client's interests for the facts to become widely known. Normally the only grounds for placing restrictions on the Consultant are where matters of security arise.

31.5 Settlement of Disputes

Clause 43 (Claims for Loss or Damage) is really only a lead in to the Clause which follows.

Clause 44 refers to Arbitration. The wording in Part I does little more than establish that disputes shall be settled by arbitration, leaving the system and rules to be set out in Part II. The method adopted in Part II will be studied by Consultants when preparing their proposals and will be taken into account when working up their submissions. For international work, it is preferable to specify some internationally recognized form rather than a domestic body.

32. CASE STUDIES

A : CASES FOR RED BOOK

Case 1 (RB)

A country in the Middle East wishes to arrange the construction of a major international airport and hopes to obtain financing from an International Financial Institution (IFI). A firm of Consulting Engineers is retained by the Government of that country to study the feasibility, with the understanding that the same firm will be subsequently be asked to design and supervise construction, and to assist the Government is persuading the IFI to grant the loan.

The Consulting Engineers' studies reveal that there are already a number of international airports in the area and that most of these are not operating to capacity.

What recommendations should the Consulting Engineers make to the Government, and what help can they give the Government in its approach to an IFI for financing ?

Case 2 (RB)

The Government of a developing country in Africa has received a positive feasibility report for a major hydro-electric development.

The essential details are :

- * An embankment dam involving 50 million cubic metres of fill.
- * A 20 km tunnel through rock of varying quality
- * A power station with 500 MW installed capacity

The development is some 1000 km from the coast, 200 km from the nearest railhead and lies in an areas with a hot and humid climate.

The Government has obtained provisional agreement from an International Financial Institution (IFI) to grant a loan to meet a significant part of the foreign exchange costs of the development. The IFI requires tenderers to be prequalified and asks to be advised of the criteria that will be applied in prequalification.

The Consulting Engineers are asked by Government to recommend appropriate criteria.

What criteria should the Consulting Engineers put forward ?

Case 3 (RB)

The Consulting Engineers on a project carry out prequalification, in accordance with the terms of reference agreed with the Client, and make their recommendations. The Client asks for the names of two firms, not recommended by the Consulting Engineers for prequalification to be added to the list for invitation to tender.

What courses of action are open to the Consulting Engineers and what should they do?

Case 4 (RB)

A project is located approximately 5000 km from the Head Office of the Engineer and, bearing communication difficulties in mind, the Engineer appoints a very experienced engineer as the Engineer's Representative (ER).

What authorities should the Engineer not delegate to the ER? Give Clause or Sub-Clause numbers and give the logic for not delegating in each case.

Case 5 (RB)

The Time for Completion of a Contract is three years. The Contractor submits a programme showing completion in two and half years. The Engineer, whilst acknowledging that it is conceivable that the Contract could be executed in the shorter time, believes it to be most unlikely that the Contractor will achieve earlier completion.

The Contractor is pressing the Engineer to give consent to the programme.

What courses of action are open to the Engineer and which of these should he adopt?
What factors are likely to influence the Engineer in determining what to do?

Case 6 (RB)

The Contract for the civil engineering works of a major project is awarded to a well respected firm of contractors who have prequalified and who submitted the lowest tender. The Time for Completion is four years.

After award, the Contractor advises the Engineer that he is having difficulty in making arrangements to provide the performance security required under the Contract and asks for time to take necessary measures.

The Contract is based upon FIDIC Fourth Edition which requires security to be provided to the Employer within 28 days after the receipt of the Letter of Acceptance.

Can the Engineer grant the Contractor extra time?

What should the Engineer recommend to the Employer?

What can be done if the date, or extended date for the provision of the security passes and the Contractor has still not produced it?

Case 7 (RB)

A Contractor for the construction of a printing works for a national newspaper provides that the design for a part of the Permanent Works is the responsibility of the Contractor. The Contractor submits the design data to the Engineer who duly gives his approval.

Unfortunately, the building subsequently collapses during the Defects Liability Period whilst the Employer is installing the printing machinery, causing damage to the property of third parties in addition to loss of the Works.

What are the responsibilities of the Contractor and the Engineer to the Employer and the third parties?
Has the Employer any responsibility to the third parties?

Case 8 (RB)

In the course of the construction of a gravity dam, a sample of concrete taken from a pour fails to meet the specified 7 day cube strength. By the time the result is known, another pour of concrete has already been placed on top of the pour from which the sample was taken.

On being confronted with the result, the Contractor argues that the test results from all pours to date showed that the concrete only passed the 7 day test by a narrow margin, but achieved the 28 day strength with a substantial margin. He writes to the Engineer stating that, in his opinion, he should be allowed to proceed with the work.

How should the Engineer word his letter of reply to the Contractor?

Case 9 (RB)

Soon after the award of a Contract, the Engineer writes to the Contractor requiring the Contractor to provide details of the Contractor's Equipment that is to be used for the execution of the Works. The Engineer, from past experience, believes that the Equipment listed by the Contractor may not enable the Contractor to achieve the standards specified in the Contract nor enable him to complete the Works in accordance with the Time for Completion.

The Contractor, however, continues to assert that the Equipment he is proposing to use is satisfactory and will enable him to meet his contractual requirements.

Can the Engineer instruct the Contractor to use different Equipment?
What would be the consequences if he did so?
Are there any particular considerations the Engineer should bear in mind when writing to the Contractor on the subject?

Case 10 (RB)

Prior to the completion of the Permanent Works for a port development, the Employer decides to take into use a wharf which has not had the final wearing surface placed. The Contractor requests a Taking-Over Certificate in accordance with Sub-Clause 48.2(c) and the Engineer issues the Certificate.

During the Defects Liability Period, the Employer only vacates the area in stages to allow the Contractor to execute the surfacing work and the Contractor is thus obliged to complete the work in a piecemeal fashion.

Can the Contractor refuse to do the work in these circumstances?
If he does execute the work, is he entitled to payment in excess of Bill rates?
If at the end of the Defects Liability Period the Employer has still not enabled the Contractor to complete all the outstanding work, what is the contractual position?

Case 11 (RB)

The Engineer prepares a list of 6 firms who are to be invited to tender for the supply and installation of certain specialist Plant in a chemical factory, with the intention that the work should be included as a nominated Subcontract. The Contractor confirms that he would be prepared to accept any of the firms as a nominated Subcontractor and states that he has no objection to the proposed tender documents.

Tenders are duly received and the lowest tenderer is nominated by the Engineer. The Contractor enters into a Subcontract with a nominated firm.

Consider two situations:

- (i) The nominated SubContractor's work is not in accordance with the Specification.

Who is responsible for taking action, and who meets the extra costs, if any?

- (ii) The nominated Subcontractor goes bankrupt.

Who is responsible for selecting a replacement Subcontractor, and who meets the extra cost, if any?

Case 12 (RB)

After approximately one third of the Time for Completion of a four year Contract had elapsed, the Contractor reported to the Engineer that he has cash flow problems. The Contractor asked the Engineer for assistance by means of more generous certification against some substantial lump sum items in the Bill of Quantities. A breakdown of the lump sum items had been approved by the Engineer early in the Contract in accordance with Sub-Clause 57.2 and the basis for payment had been agreed.

At the time when the Contractor requested assistance, the progress of the Works was generally in accordance with the programme, but the Engineer had become concerned that the Contractor was not building up an adequate stock of materials on Site.

Has the Engineer the authority to meet the Contractor's request?

Has he any other means of alleviating the Contractor's problem?

What are the Employer's interests in this situation?

Case 13 (RB)

The Contractor asks the Engineer for a decision on a certain matter in dispute in accordance with Clause 67. The Engineer however, considers that the dispute relates to a matter of law and does not feel competent to give a decision.

What should the Engineer do?

Case 14 (RB)

Following receipt of the insurance policies from the Contractor in accordance with Sub-Clause 25.1, the Employer asks the Engineer to confirm that the policies meet the requirements of the Contract.

Has the Engineer a duty to the Employer to give such an assurance?

If he does not feel competent to express an opinion, what should he do?

Case 15 (RB)

Some months after the award of the Contract, the Employer is becoming slower and slower in making payments to the Contractor, but is still managing to pay within the time limit contained in the Contract. Ultimately however, the Employer fails to pay the Contractor the amount due under a certificate within 28 days after the time stipulated for making such payments.

The Contractor then gives notice to the Employer, with a copy to the Engineer, of the termination of his employment under the Contract. On receipt of the notice, and before the expiration of the 14 day period after which the termination will take effect, the Employer pays the Contractor in full, including interest in accordance with the terms of the Contract.

The Employer then instructs the Engineer to require the Contractor to proceed with the Work.

Is the Engineer empowered, in these circumstances, to require the Contractor to proceed?
If not, what is the position, and what can the Employer do?

Case 16 (RB)

The Engineer and the Contractor were unable to agree upon certain items which the Contractor had included in his draft final statement under Sub-Clause 60.6 and the Contractor refused to submit his Final Statement until the Engineer agreed that the Contractor could include all his claims.

The Engineer refused to allow this stating that by Sub-Clause 60.6 the Final Statement must be "agreed" and it could thus not include claims which were not agreed. The Contractor finally decided that something was better than nothing and submitted his Final Statement for the amount accepted by the Engineer. However, he refused to give the Employer the written discharge required by Sub-Clause 60.7 since, in the Contractor's opinion, the amount of the Final Statement did not represent what he wanted "in full and final settlement".

The Engineer refused to issue the Final Certificate stating that whilst he received the Final Statement, he had not received the written discharge, and thus by Sub-Clause 60.8 he was not empowered to issue the Certificate.

Have the parties acted correctly under Clause 60 - if not, what should they have done?
What steps can the Contractor take to get his money?

Case 17 (RB)

The Bill of Quantities for an airport Contract, included an item for the supply and erection of 6 No. 20 m high reinforced concrete lighting columns. The Engineer issued a variation instructing the Contractor to omit 4 of the columns.

The Contractor claimed a change in the unit rate for the item, arguing that the erection of the columns required a special crane and that with only two columns to erect he would not recover the cost of bringing the crane on to the Site if the original rates applied.

The Engineer stated that the varied work was of infinitesimal value in relation to the value of the Contract as a whole and that the Contractor would have to rely on the application of Sub-Clause 52.3, if it was ultimately found to take effect.

Was the Engineer correct in the position he adopted?

Case 18 (RB)

As the Contract for the construction of a factory in a sparsely populated area for nearing completion, the Contractor started to tidy up the Site. As a part of this operation, the Contractor agreed with the Engineer that he would burn all old shuttering and other materials for which he had no further use.

The owner of a hotel close to the Site, the only building in the immediate vicinity, complained to the Engineer about the smoke and smell, saying that both his guests had packed up and left the hotel as a result, and claiming compensation for his lost revenue.

Who, if anyone, do you consider was liable to the owner in these circumstances - the Engineer or the Contractor?

Case 19 (RB)

A tenderer submitted an offer for major hydro-electric project in South America which included both the civil works and the supply and installation of all associated Plant and equipment for two large sites known as Dam Site A and Dam Site B. Both Dam Sites lay on the same river but were approximately five miles apart and Dam A was approximately four times the size of Dam B. In his offer, the Tenderer had named his proposed suppliers for the turbines, the generators and the switchgear and control equipment.

The Tenderer was in due course advised that his offer had been short-listed and he was called to a "Clarification Meeting" with the Employer. At the meeting the Employer advised the Tenderer that:

- (a) The Employer reserved the right to award the project as two separate contracts, one for each Dam Site, awarded to two contractors. The final decision would be taken later
- (b) The named turbine supplier was unacceptable - no reasons given - but the Tenderer was required to obtain turbines from a supplier named by the Employer.
- (c) The Contract would be valued on the basis of a schedule of unit prices which would be applicable to either Dam Site.

To what extent can the Tenderer comply with the Employer's request?
What factors have to be taken into account?

Case 20 (RB)

About half way through a substantial five year contract the Employer found that due to economic and political decisions within his Ministry, it was no longer possible for him to continue with the Works

The Employer, having read Clause 69 of the Red Book, was preparing himself to terminate the Contract and compensate the Contractor accordingly. However, on discussing the situation with his Engineer, the Engineer saw a way around the problem and duly issued a Variation to the Contractor deleting the remainder of the Works from the Contract under Clause 51.1(b).

Is the Engineer entitled to do this under Clause 51?
Was that a professional approach?
Is there anything the Contractor can do?

B : CASES FOR YELLOW BOOK

Case 21 (YB)

A Contract for the supply of Plant and commissioning of a large pumping station included the obligation of the Contractor to test the pumps on full load prior to taking over the Employer. At the time of award of the Contract, the construction of high pressure water main to connect to the pumping station was in progress under a separate contract awarded to a local contractor.

The Contract Documents stated that it was expected that the water main would be completed some three months prior to the planned commissioning date.

Unfortunately, the local contractor went bankrupt, caused amongst other things by excessively bad ground conditions and an excessively low price (which is why he got the contract in the first place). Thus, by the time the Contractor had installed the pumps and was ready to carry out tests, there was no water connection available and it was thus, not possible to proceed with the tests.

The Engineer refused to issue the Taking-Over Certificate, but being a fair man, he did grant the Contractor an extension of time until such time that the pipeline was completed.

After waiting for some three months the Contractor stated that the so-called extension of time in these circumstances was in fact a Suspension of the Works and according to Clause 24.3 he was by now entitled to terminate the Contract - which, after giving due notice, he did and left the Site.

The Employer sued the Contractor for breach of Contract.

Analyse who won the case and why?

Case 22 (YB)

On a transmission line project in a politically unstable country, the Contractor is seriously threatened and disrupted by the activities of anti-government guerilla forces and requests the Employer to provide some form of military protection. The military personnel duly arrive and commandeer all the Contractor's lorries and transportation to chase and intercept the guerillas. Unfortunately, the Contractor never sees the soldiers or his lorries and equipment again.

The Contractor claimed for the loss of his equipment, but the Employer stated that under the emergency laws existing in the country, the military were in fact entitled to commandeer whatever they needed and it was just unfortunate for the Contractor that in these circumstances no compensation was payable.

Can the Contractor, find any other approach under the Contract to get round this problem?

Case 23 (YB)

The Contractor gives notice to the Engineer in accordance with Clause 2.7 that he disputes an instruction by the Engineer involving the interpretation of the Contractor. The Engineer however, considers that the dispute relates to a matter of law and does not feel competent to give a decision.

What should the Engineer do?

Case 24 (YB)

A Contractor submitted with his Tender a technical catalogue containing details of recommended spare parts for a transformer. The catalogue included a price list "ex works". The Contractor's Schedule of Prices contained prices for the same items "delivered Site".

Even allowing for shipping and delivery, the prices in the Schedule of Prices were considerably higher than the prices in the catalogue and the Engineer recommend to the Employer that he buys the spares "ex works" at the catalogue prices and offered to arrange shipment for a small fee.

Is the Contractor obliged to sell at catalogue prices?

Case 25 (YB)

The Contractor on a major hydro-electric project in East Africa ships his turbines from his factory in Europe to the nearest African port in accordance with the programme which had been submitted under Clause 12.1.

Due to delay by the civil engineering contractor, the Site is not ready and the Contractor is obliged to store the Plant at the port for 3 months. Immediately after receiving notice to this effect from the Employer, the Contractor notifies the Engineer of his intention to claim under Clause 34.

When permission to deliver is finally granted, the Contractor submits a substantial claim based on the high storage costs imposed by the harbour authorities and at the same time claims a 3 months extension of time due to the delay.

The Engineer rejects both claims:

- (a) that for costs - on grounds that the Contractor had not properly complied with Clause 22.1 prior to arranging delivery. The Engineer however stated that he would certify costs on the basis of the Contractor storing the Plant at his own works, and
- (b) that for time - on the grounds that the Contractor had not notified him within 14 days under Clause 26.1.

Examine the decision of the Engineer?

Case 26 (YB)

Some transformers were, as part of the Contract, required to be painted with a named brand of paint, but during the Defects Liability Period it was noticed that the paint started to break down and discolour.

The Engineer condemned the works as unacceptable and defective and ordered the Contractor to redo the paint work - using the same brand of paint as named in the Contract. The Contractor was convinced that there was nothing wrong with his workmanship and took expert advice on the quality of the paint itself. He was told by the expert that although the paint was suitable for general exterior work, it was not suitable for this type of application as it deteriorated rapidly under the heat generated by the transformers.

The Contractor requested the Engineer to issue a Variation Order to cover the work involved and advised the Engineer that he would be claiming for :

- (a) The cost of more expensive paint
- (b) The cost of stripping old paint
- (c) The cost of expert advice
- (d) A time extension equivalent to the time necessary for repainting

The Engineer duly consulted with the Employer and the Contractor and asks the Employer for his views on the Contractor's claim.

Analyse the Employer's line of thinking on the Contractor's claim.

Case 27 (YB)

A Contract is signed for US\$ 1 million with provisions for an Advance Payment of 10% to be made within 28 days of the date of the Contract award. The Time for Completion is 100 weeks and the Contract includes provision for payment of a bonus of US\$ 10,000 per week for early completion.

Unfortunately, the financing agency is not happy with the details of the Contract and refuses to release the Advance Payment until the Contract is corrected. The corrections are duly made and the Contractor receives the Advance Payment some 20 weeks after it was due.

During this time, the Contractor had proceeded with the Works and the Contract was completed on time - i.e. 100 weeks from the originally anticipated Commencement Date.

In his application for the Final Certificate of Payment, the Contractor claims:

- (a) US\$ 200,000 bonus for early completion, and
- (b) US\$ 7,500 bank charges

Is the Contractor entitled to receive either of the above?

Case 28 (YB)

The Specification for the supply and erection of a tall television mast in northern Scandinavia, together with all associated electronic equipment and aerial systems, stated:

"..... the mast shall be designed and supplied by the Maximasts Ltd...." (who were the only manufacturers of the chosen type of mast)

The Contractor, who was a specialist in electronic equipment and knew about masts, duly obtained a quotation from Maximasts and included in this Tender a prices for ".....the design, delivery and erection....." of the mast.

Unfortunately, when winter came the mast collapsed. The cause was apparently heavy icing and strong winds. When it fell, the mast destroyed the TV relay station and three private houses

Examine who is liable for payment of damages in respect of

- a. the mast
- b. the TV relay station
- c. the three houses.

Case 29 (YB)

In the Special Conditions of Contract Clause 46.1(e) has been deleted. Three months after the award of the Contract, the Employer advises the Contractor that he is appointing a new Engineer - a local firm ABC Consultants whom the Contractor has never heard of.

The Contractor was not asked for his consent to the change, but had no immediate objections - in fact he had a further six months of manufacturing work before the engineer would be called in to witness factory testing of the Plant and as it turned out he never saw the Engineer during this period.

When the Engineer arrived for the testing at the agreed place and time, the Contractor found that he was totally incompetent, having no experience whatsoever in the type of work or Plant involved. Realizing his own shortcomings, the Engineer decided to appoint an independent inspector under Clause 20.1 and the following day called in an expert from one of the Contractor's main competitors to inspect and test the Plant.

The Contractor refused to admit the expert to his works.

The Contractor further claimed that the Employer had not asked the Contractor for his consent to the replacement of the Engineer in the first place under Clause 2.8 and thus the Employer was in breach of Contract and, despite the fact that Clause 46.1(e) had been deleted from the Contract, the Contractor gave the Employer 14 days notice of his intention to terminate the Contract under Clause 46.1 unless the Employer reinstated the original Engineer.

Who is at fault in this solution?

Has the Contractor the right to terminate under Clause 46.1(d)?

Case 30 (YB)

During the Defects Liability Period on a Contract to supply and install a large generating unit, the Plant began to develop some unexpected vibrations during operation. The Engineer instructed the Employer's maintenance personnel to take the plant out of operation until the matter could be attended to after the weekend and agreed with the Employer to switch the generator to "stand-by" operation, so that it would only come into use in an emergency.

Unfortunately, over the weekend, emergency circumstances arose when one of the bearings on another generator burnt out and the stand-by unit was automatically switched into operation. The vibrations gradually increased, ultimately causing distortion of the rotor and fracture to the main casing. Inspection of the damage on Monday morning showed that it would be necessary to replace the complete generating unit.

The Contractor accepted that he was responsible for adjusting the smooth running of the Plant, a simple adjustment described on Page 5 of the Operator's Manual, but he claimed that the resultant damage to the unit - which could have been prevented had the adjustment been made - was "consequential damage" and thus, according to Clause 42.1, he was not liable for the cost of replacement.

The Contractor advised the Employer that he would stand the cost of making the adjustment - some US\$ 550 - but that the cost of replacing the generator - some US\$ 2.5 million - must be borne by the Employer.

Discuss the Contractor's liability to be in this case?

PART C - FIDIC DOCUMENTS

- I. FIDIC Conditions of Contract for Works of Civil Engineering Construction (fourth edition 1987)
- II. FIDIC Conditions of Contract for Electrical and Mechanical Works (third edition 1987)
- III. Client/Consultant Model Services Agreement (2nd edition 1991)

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Explanatory documents that are available from the FIDIC Secretariat include :

1. Guide to the use of FIDIC Conditions of Contract for Works of Civil Engineering Construction (The Red Book Guide, 1989)
2. Marked-up copy, Part 1 showing where changes from the third edition have been effected (in photocopied A4 format)
3. Guide to the use of FIDIC Conditions of Contract for Electrical and Mechanical Works (The Yellow Book Guide, 1988)
4. The White Book Guide, with Notes on Documents for Consultancy Agreements (1991).



FEDERATION INTERNATIONALE DES INGENIEURS-CONSEILS

CONDITIONS OF CONTRACT
FOR WORKS OF CIVIL
ENGINEERING CONSTRUCTION

PART I GENERAL CONDITIONS
WITH FORMS OF TENDER AND AGREEMENT

FOURTH EDITION 1987

Reprinted 1988 with editorial amendments

FOREWORD

The terms of the Fourth Edition of the Conditions of Contract for Works of Civil Engineering Construction have been prepared by the Fédération Internationale des Ingénieurs Conseils (FIDIC) and are recommended for general use for the purpose of construction of such works where tenders are invited on an international basis. The Conditions, subject to minor modifications, are also suitable for use on domestic contracts.

The version in English of the Conditions is considered by FIDIC as the official and authentic text for the purpose of translation.

In the preparation of the Conditions it was recognised that while there are numerous Clauses which will be generally applicable there are some Clauses which must necessarily vary to take account of the circumstances and locality of the Works. The Clauses of general application have been grouped together in this document and are referred to as Part I — General Conditions. They have been printed in a form which will facilitate their inclusion as printed in the contract documents normally prepared.

The General Conditions are linked with the Conditions of Particular Application, referred to as Part II, by the corresponding numbering of the Clauses, so that Parts I and II together comprise the Conditions governing the rights and obligations of the parties.

Part II must be specially drafted to suit each individual Contract.

When dredging and certain types of reclamation work are involved special consideration must be given to Part II.

To assist in the preparation of Part II explanatory material and example clauses are published with the Conditions in a separately bound document entitled “Conditions of Contract for Works of Civil Engineering Construction, Part II — Conditions of Particular Application, with Guidelines for preparation of Part II Clauses, Fourth Edition”.

FIDIC anticipates publishing shortly a new edition of its booklet “Notes on Documents for Civil Engineering Contracts” (1977 reprinted 1979) which will include comments on provisions of the Fourth Edition of the Conditions. Users of the Fourth Edition may find it helpful to refer to the new edition of the Notes.

It may also be helpful for users to refer to other FIDIC publications, such as:

Tendering Procedure (First Edition 1982)
Construction, Insurance and Law (1986)

FIDIC gratefully acknowledges the suggestions and comments it has received during the preparation of this edition from European International Contractors (EIC) as mandatory of Confederation of International Contractors Associations (CICA) with participation of Associated General Contractors of America (AGC).

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TENDER

AGREEMENT

EDITORIAL AMENDMENTS

PART I – GENERAL CONDITIONS

Definitions and Interpretation

Definitions

1.1 In the Contract (as hereinafter defined) the following words and expressions shall have the meanings hereby assigned to them, except where the context otherwise requires:

(a) (i) “Employer” means the person named as such in Part II of these Conditions and the legal successors in title to such person, but not (except with the consent of the Contractor) any assignee of such person.

(ii) “Contractor” means the person whose tender has been accepted by the Employer and the legal successors in title to such person, but not (except with the consent of the Employer) any assignee of such person.

(iii) “Subcontractor” means any person named in the Contract as a Subcontractor for a part of the Works or any person to whom a part of the Works has been subcontracted with the consent of the Engineer and the legal successors in title to such person, but not any assignee of any such person.

(iv) “Engineer” means the person appointed by the Employer to act as Engineer for the purposes of the Contract and named as such in Part II of these Conditions.

(v) “Engineer’s Representative” means a person appointed from time to time by the Engineer under Sub-Clause 2.2.

(b) (i) “Contract” means these Conditions (Parts I and II), the Specification, the Drawings, the Bill of Quantities, the Tender, the Letter of Acceptance, the Contract Agreement (if completed) and such further documents as may be expressly incorporated in the Letter of Acceptance or Contract Agreement (if completed).

(ii) “Specification” means the specification of the Works included in the Contract and any modification thereof or addition thereto made under Clause 51 or submitted by the Contractor and approved by the Engineer.

(iii) “Drawings” means all drawings, calculations and technical information of a like nature provided by the Engineer to the Contractor under the Contract and all drawings, calculations, samples, patterns, models, operation and maintenance manuals and other technical information of a like nature submitted by the Contractor and approved by the Engineer.

(iv) “Bill of Quantities” means the priced and completed bill of quantities forming part of the Tender.

(v) “Tender” means the Contractor’s priced offer to the Employer for the execution and completion of the Works and the remedying of any defects therein in accordance with the provisions of the Contract, as accepted by the Letter of Acceptance.

(vi) “Letter of Acceptance” means the formal acceptance by the Employer of the Tender.

(vii) “Contract Agreement” means the contract agreement (if any) referred to in Sub-Clause 9.1.

(viii) “Appendix to Tender” means the appendix comprised in the form of Tender annexed to these Conditions.

(c) (i) “Commencement Date” means the date upon which the Contractor receives the notice to commence issued by the Engineer pursuant to Clause 41.

- (ii) "Time for Completion" means the time for completing the execution of and passing the Tests on Completion of the Works or any Section or part thereof as stated in the Contract (or as extended under Clause 44) calculated from the Commencement Date.
- (d) (i) "Tests on Completion" means the tests specified in the Contract or otherwise agreed by the Engineer and the Contractor which are to be made by the Contractor before the Works or any Section or part thereof are taken over by the Employer.
- (ii) "Taking-Over Certificate" means a certificate issued pursuant to Clause 48.
- (e) (i) "Contract Price" means the sum stated in the Letter of Acceptance as payable to the Contractor for the execution and completion of the Works and the remedying of any defects therein in accordance with the provisions of the Contract.
- (ii) "Retention Money" means the aggregate of all monies retained by the Employer pursuant to Sub-Clause 60.2(a).
- (f) (i) "Works" means the Permanent Works and the Temporary Works or either of them as appropriate.
- (ii) "Permanent Works" means the permanent works to be executed (including Plant) in accordance with the Contract.
- (iii) "Temporary Works" means all temporary works of every kind (other than Contractor's Equipment) required in or about the execution and completion of the Works and the remedying of any defects therein.
- (iv) "Plant" means machinery, apparatus and the like intended to form or forming part of the Permanent Works.
- (v) "Contractor's Equipment" means all appliances and things of whatsoever nature (other than Temporary Works) required for the execution and completion of the Works and the remedying of any defects therein, but does not include Plant, materials or other things intended to form or forming part of the Permanent Works.
- (vi) "Section" means a part of the Works specifically identified in the Contract as a Section.
- (vii) "Site" means the places provided by the Employer where the Works are to be executed and any other places as may be specifically designated in the Contract as forming part of the Site.
- (g) (i) "cost" means all expenditure properly incurred or to be incurred, whether on or off the Site, including overhead and other charges properly allocable thereto but does not include any allowance for profit.
- (ii) "day" means calendar day.
- (iii) "foreign currency" means a currency of a country other than that in which the Works are to be located.
- (iv) "writing" means any hand-written, type-written, or printed communication, including telex, cable and facsimile transmission.

Headings and Marginal Notes

- 1.2 The headings and marginal notes in these Conditions shall not be deemed part thereof or be taken into consideration in the interpretation or construction thereof or of the Contract.

Interpretation

- 1.3 Words importing persons or parties shall include firms and corporations and any organisation having legal capacity.

Singular and Plural

- 1.4 Words importing the singular only also include the plural and vice versa where the context requires.

- 1.5** Wherever in the Contract provision is made for the giving or issue of any notice, consent, approval, certificate or determination by any person, unless otherwise specified such notice, consent, approval, certificate or determination shall be in writing and the words “notify”, “certify” or “determine” shall be construed accordingly. Any such consent, approval, certificate or determination shall not unreasonably be withheld or delayed.

Engineer and Engineer’s Representative

- 2.1** (a) The Engineer shall carry out the duties specified in the Contract.
- (b) The Engineer may exercise the authority specified in or necessarily to be implied from the Contract, provided, however, that if the Engineer is required, under the terms of his appointment by the Employer, to obtain the specific approval of the Employer before exercising any such authority, particulars of such requirements shall be set out in Part II of these Conditions. Provided further that any requisite approval shall be deemed to have been given by the Employer for any such authority exercised by the Engineer.
- (c) Except as expressly stated in the Contract, the Engineer shall have no authority to relieve the Contractor of any of his obligations under the Contract.

- 2.2** The Engineer’s Representative shall be appointed by and be responsible to the Engineer and shall carry out such duties and exercise such authority as may be delegated to him by the Engineer under Sub-Clause 2.3.

- 2.3** The Engineer may from time to time delegate to the Engineer’s Representative any of the duties and authorities vested in the Engineer and he may at any time revoke such delegation. Any such delegation or revocation shall be in writing and shall not take effect until a copy thereof has been delivered to the Employer and the Contractor.

Any communication given by the Engineer’s Representative to the Contractor in accordance with such delegation shall have the same effect as though it had been given by the Engineer. Provided that:

- (a) any failure of the Engineer’s Representative to disapprove any work, materials or Plant shall not prejudice the authority of the Engineer to disapprove such work, materials or Plant and to give instructions for the rectification thereof;
- (b) if the Contractor questions any communication of the Engineer’s Representative he may refer the matter to the Engineer who shall confirm, reverse or vary the contents of such communication.

- 2.4** The Engineer or the Engineer’s Representative may appoint any number of persons to assist the Engineer’s Representative in the carrying out of his duties under Sub-Clause 2.2. He shall notify to the Contractor the names, duties and scope of authority of such persons. Such assistants shall have no authority to issue any instructions to the Contractor save in so far as such instructions may be necessary to enable them to carry out their duties and to secure their acceptance of materials, Plant or workmanship as being in accordance with the Contract, and any instructions given by any of them for those purposes shall be deemed to have been given by the Engineer’s Representative.

- 2.5** Instructions given by the Engineer shall be in writing, provided that if for any reason the Engineer considers it necessary to give any such instruction orally, the Contractor shall comply with such instruction. Confirmation in writing of such oral instruction given by the Engineer, whether before or after the carrying out of the instruction, shall be deemed to be an instruction within the meaning of this Sub-Clause. Provided further that if the Contractor, within 7 days, confirms in writing to the Engineer any oral instruction of the Engineer and such confirmation is not contradicted in writing within 7 days by the Engineer, it shall be deemed to be an instruction of the Engineer.

The provisions of this Sub-Clause shall equally apply to instructions given by the Engineer's Representative and any assistants of the Engineer or the Engineer's Representative appointed pursuant to Sub-Clause 2.4.

Engineer to Act Impartially

2.6 Wherever, under the Contract, the Engineer is required to exercise his discretion by:

- (a) giving his decision, opinion or consent, or
- (b) expressing his satisfaction or approval, or
- (c) determining value, or
- (d) otherwise taking action which may affect the rights and obligations of the Employer or the Contractor

he shall exercise such discretion impartially within the terms of the Contract and having regard to all the circumstances. Any such decision, opinion, consent, expression of satisfaction, or approval, determination of value or action may be opened up, reviewed or revised as provided in Clause 67.

Assignment and Subcontracting

Assignment of Contract

3.1 The Contractor shall not, without the prior consent of the Employer (which consent, notwithstanding the provisions of Sub-Clause 1.5, shall be at the sole discretion of the Employer), assign the Contract or any part thereof, or any benefit or interest therein or thereunder, otherwise than by:

- (a) a charge in favour of the Contractor's bankers of any monies due or to become due under the Contract, or
- (b) assignment to the Contractor's insurers (in cases where the insurers have discharged the Contractor's loss or liability) of the Contractor's right to obtain relief against any other party liable.

Subcontracting

4.1 The Contractor shall not subcontract the whole of the Works. Except where otherwise provided by the Contract, the Contractor shall not subcontract any part of the Works without the prior consent of the Engineer. Any such consent shall not relieve the Contractor from any liability or obligation under the Contract and he shall be responsible for the acts, defaults and neglects of any Subcontractor, his agents, servants or workmen as fully as if they were the acts, defaults or neglects of the Contractor, his agents, servants or workmen.

Provided that the Contractor shall not be required to obtain such consent for:

- (a) the provision of labour, or
- (b) the purchase of materials which are in accordance with the standards specified in the Contract, or
- (c) the subcontracting of any part of the Works for which the Subcontractor is named in the Contract.

Assignment of Subcontractors' Obligations

4.2 In the event of a Subcontractor having undertaken towards the Contractor in respect of the work executed, or the goods, materials, Plant or services supplied by such Subcontractor, any continuing obligation extending for a period exceeding that of the Defects Liability Period under the Contract, the Contractor shall at any time, after the expiration of such Period, assign to the Employer, at the Employer's request and cost, the benefit of such obligation for the unexpired duration thereof.

Contract Documents

Language/s and Law

5.1 There is stated in Part II of these Conditions:

- (a) the language or languages in which the Contract documents shall be drawn up, and

(b) the country or state the law of which shall apply to the Contract and according to which the Contract shall be construed.

If the said documents are written in more than one language, the language according to which the Contract shall be construed and interpreted is also stated in Part II of these Conditions, being therein designated the "Ruling Language".

**Priority of
Contract
Documents**

5.2 The several documents forming the Contract are to be taken as mutually explanatory of one another, but in case of ambiguities or discrepancies the same shall be explained and adjusted by the Engineer who shall thereupon issue to the Contractor instructions thereon and in such event, unless otherwise provided in the Contract, the priority of the documents forming the Contract shall be as follows:

- (1) The Contract Agreement (if completed);
- (2) The Letter of Acceptance;
- (3) The Tender;
- (4) Part II of these Conditions;
- (5) Part I of these Conditions; and
- (6) Any other document forming part of the Contract.

**Custody and
Supply of
Drawings and
Documents**

6.1 The Drawings shall remain in the sole custody of the Engineer, but two copies thereof shall be provided to the Contractor free of charge. The Contractor shall make at his own cost any further copies required by him. Unless it is strictly necessary for the purposes of the Contract, the Drawings, Specification and other documents provided by the Employer or the Engineer shall not, without the consent of the Engineer, be used or communicated to a third party by the Contractor. Upon issue of the Defects Liability Certificate, the Contractor shall return to the Engineer all Drawings, Specification and other documents provided under the Contract.

The Contractor shall supply to the Engineer four copies of all Drawings, Specification and other documents submitted by the Contractor and approved by the Engineer in accordance with Clause 7, together with a reproducible copy of any material which cannot be reproduced to an equal standard by photocopying. In addition the Contractor shall supply such further copies of such Drawings, Specification and other documents as the Engineer may request in writing for the use of the Employer, who shall pay the cost thereof.

**One Copy of
Drawings to be
Kept on Site**

6.2 One copy of the Drawings, provided to or supplied by the Contractor as aforesaid, shall be kept by the Contractor on the Site and the same shall at all reasonable times be available for inspection and use by the Engineer and by any other person authorised by the Engineer in writing.

**Disruption of
Progress**

6.3 The Contractor shall give notice to the Engineer, with a copy to the Employer, whenever planning or execution of the Works is likely to be delayed or disrupted unless any further drawing or instruction is issued by the Engineer within a reasonable time. The notice shall include details of the drawing or instruction required and of why and by when it is required and of any delay or disruption likely to be suffered if it is late.

**Delays and
Cost of Delay
of Drawings**

6.4 If, by reason of any failure or inability of the Engineer to issue, within a time reasonable in all the circumstances, any drawing or instruction for which notice has been given by the Contractor in accordance with Sub-Clause 6.3, the Contractor suffers delay and/or incurs costs then the Engineer shall, after due consultation with the Employer and the Contractor, determine:

- (a) any extension of time to which the Contractor is entitled under Clause 44, and
- (b) the amount of such costs, which shall be added to the Contract Price, and shall notify the Contractor accordingly, with a copy to the Employer.

Failure by Contractor to Submit Drawings	6.5	If the failure or inability of the Engineer to issue any drawings or instructions is caused in whole or in part by the failure of the Contractor to submit Drawings, Specification or other documents which he is required to submit under the Contract, the Engineer shall take such failure by the Contractor into account when making his determination pursuant to Sub-Clause 6.4.
Supplementary Drawings and Instructions	7.1	The Engineer shall have authority to issue to the Contractor, from time to time, such supplementary Drawings and instructions as shall be necessary for the purpose of the proper and adequate execution and completion of the Works and the remedying of any defects therein. The Contractor shall carry out and be bound by the same.
Permanent Works Designed by Contractor	7.2	Where the Contract expressly provides that part of the Permanent Works shall be designed by the Contractor, he shall submit to the Engineer, for approval: (a) such drawings, specifications, calculations and other information as shall be necessary to satisfy the Engineer as to the suitability and adequacy of that design, and (b) operation and maintenance manuals together with drawings of the Permanent Works as completed, in sufficient detail to enable the Employer to operate, maintain, dismantle, reassemble and adjust the Permanent Works incorporating that design. The Works shall not be considered to be completed for the purposes of taking over in accordance with Clause 48 until such operation and maintenance manuals, together with drawings on completion, have been submitted to and approved by the Engineer.
Responsibility Unaffected by Approval	7.3	Approval by the Engineer, in accordance with Sub-Clause 7.2, shall not relieve the Contractor of any of his responsibilities under the Contract.

General Obligations

Contractor's General Responsibilities	8.1	The Contractor shall, with due care and diligence, design (to the extent provided for by the Contract), execute and complete the Works and remedy any defects therein in accordance with the provisions of the Contract. The Contractor shall provide all superintendence, labour, materials, Plant, Contractor's Equipment and all other things, whether of a temporary or permanent nature, required in and for such design, execution, completion and remedying of any defects, so far as the necessity for providing the same is specified in or is reasonably to be inferred from the Contract.
Site Operations and Methods of Construction	8.2	The Contractor shall take full responsibility for the adequacy, stability and safety of all Site operations and methods of construction. Provided that the Contractor shall not be responsible (except as stated hereunder or as may be otherwise agreed) for the design or specification of Permanent Works, or for the design or specification of any Temporary Works not prepared by the Contractor. Where the Contract expressly provides that part of the Permanent Works shall be designed by the Contractor, he shall be fully responsible for that part of such Works, notwithstanding any approval by the Engineer.
Contract Agreement	9.1	The Contractor shall, if called upon so to do, enter into and execute the Contract Agreement, to be prepared and completed at the cost of the Employer, in the form annexed to these Conditions with such modification as may be necessary.
Performance Security	10.1	If the Contract requires the Contractor to obtain security for his proper performance of the Contract, he shall obtain and provide to the Employer such security within 28 days after the receipt of the Letter of Acceptance, in the sum stated in the Appendix to Tender. When providing such security to the Employer, the Contractor shall notify the Engineer of so doing. Such security shall be in the form annexed to these Conditions or in such other form as may be agreed between the Employer and the Contractor. The institution providing such security shall be subject to the approval of the Employer. The cost of complying with the requirements of this Clause shall be borne by the Contractor, unless the Contract otherwise provides.

Period of Validity of Performance Security	10.2	The performance security shall be valid until the Contractor has executed and completed the Works and remedied any defects therein in accordance with the Contract. No claim shall be made against such security after the issue of the Defects Liability Certificate in accordance with Sub-Clause 62.1 and such security shall be returned to the Contractor within 14 days of the issue of the said Defects Liability Certificate.
Claims under Performance Security	10.3	Prior to making a claim under the performance security the Employer shall, in every case, notify the Contractor stating the nature of the default in respect of which the claim is to be made.
Inspection of Site	11.1	The Employer shall have made available to the Contractor, before the submission by the Contractor of the Tender, such data on hydrological and sub-surface conditions as have been obtained by or on behalf of the Employer from investigations undertaken relevant to the Works but the Contractor shall be responsible for his own interpretation thereof. The Contractor shall be deemed to have inspected and examined the Site and its surroundings and information available in connection therewith and to have satisfied himself (so far as is practicable, having regard to considerations of cost and time) before submitting his Tender, as to: (a) the form and nature thereof, including the sub-surface conditions, (b) the hydrological and climatic conditions, (c) the extent and nature of work and materials necessary for the execution and completion of the Works and the remedying of any defects therein, and (d) the means of access to the Site and the accommodation he may require and, in general, shall be deemed to have obtained all necessary information, subject as above mentioned, as to risks, contingencies and all other circumstances which may influence or affect his Tender. The Contractor shall be deemed to have based his Tender on the data made available by the Employer and on his own inspection and examination, all as aforementioned.
Sufficiency of Tender	12.1	The Contractor shall be deemed to have satisfied himself as to the correctness and sufficiency of the Tender and of the rates and prices stated in the Bill of Quantities, all of which shall, except insofar as it is otherwise provided in the Contract, cover all his obligations under the Contract (including those in respect of the supply of goods, materials, Plant or services or of contingencies for which there is a Provisional Sum) and all matters and things necessary for the proper execution and completion of the Works and the remedying of any defects therein.
Adverse Physical Obstructions or Conditions	12.2	If, however, during the execution of the Works the Contractor encounters physical obstructions or physical conditions, other than climatic conditions on the Site, which obstructions or conditions were, in his opinion, not foreseeable by an experienced contractor, the Contractor shall forthwith give notice thereof to the Engineer, with a copy to the Employer. On receipt of such notice, the Engineer shall, if in his opinion such obstructions or conditions could not have been reasonably foreseen by an experienced contractor, after due consultation with the Employer and the Contractor, determine: (a) any extension of time to which the Contractor is entitled under Clause 44, and (b) the amount of any costs which may have been incurred by the Contractor by reason of such obstructions or conditions having been encountered, which shall be added to the Contract Price, and shall notify the Contractor accordingly, with a copy to the Employer. Such determination shall take account of any instruction which the Engineer may issue to the Contractor in connection therewith, and any proper and reasonable measures acceptable to the Engineer which the Contractor may take in the absence of specific instructions from the Engineer.

Work to be in Accordance with Contract	13.1	Unless it is legally or physically impossible, the Contractor shall execute and complete the Works and remedy any defects therein in strict accordance with the Contract to the satisfaction of the Engineer. The Contractor shall comply with and adhere strictly to the Engineer's instructions on any matter, whether mentioned in the Contract or not, touching or concerning the Works. The Contractor shall take instructions only from the Engineer or, subject to the provisions of Clause 2, from the Engineer's Representative.
Programme to be Submitted	14.1	The Contractor shall, within the time stated in Part II of these Conditions after the date of the Letter of Acceptance, submit to the Engineer for his consent a programme, in such form and detail as the Engineer shall reasonably prescribe for the execution of the Works. The Contractor shall, whenever required by the Engineer, also provide in writing for his information a general description of the arrangements and methods which the Contractor proposes to adopt for the execution of the Works.
Revised Programme	14.2	If at any time it should appear to the Engineer that the actual progress of the Works does not conform to the programme to which consent has been given under Sub-Clause 14.1, the Contractor shall produce, at the request of the Engineer, a revised programme showing the modifications to such programme necessary to ensure completion of the Works within the Time for Completion.
Cash Flow Estimate to be Submitted	14.3	The Contractor shall, within the time stated in Part II of these Conditions after the date of the Letter of Acceptance, provide to the Engineer for his information a detailed cash flow estimate, in quarterly periods, of all payments to which the Contractor will be entitled under the Contract and the Contractor shall subsequently supply revised cash flow estimates at quarterly intervals, if required to do so by the Engineer.
Contractor not Relieved of Duties or Responsibilities	14.4	The submission to and consent by the Engineer of such programmes or the provision of such general descriptions or cash flow estimates shall not relieve the Contractor of any of his duties or responsibilities under the Contract.
Contractor's Superintendence	15.1	The Contractor shall provide all necessary superintendence during the execution of the Works and as long thereafter as the Engineer may consider necessary for the proper fulfilling of the Contractor's obligations under the Contract. The Contractor, or a competent and authorised representative approved of by the Engineer, which approval may at any time be withdrawn, shall give his whole time to the superintendence of the Works. Such authorised representative shall receive, on behalf of the Contractor, instructions from the Engineer or, subject to the provisions of Clause 2, the Engineer's Representative. If approval of the representative is withdrawn by the Engineer, the Contractor shall, as soon as is practicable, having regard to the requirement of replacing him as hereinafter mentioned, after receiving notice of such withdrawal, remove the representative from the Works and shall not thereafter employ him again on the Works in any capacity and shall replace him by another representative approved by the Engineer.
Contractor's Employees	16.1	The Contractor shall provide on the Site in connection with the execution and completion of the Works and the remedying of any defects therein (a) only such technical assistants as are skilled and experienced in their respective callings and such foremen and leading hands as are competent to give proper superintendence of the Works, and (b) such skilled, semi-skilled and unskilled labour as is necessary for the proper and timely fulfilling of the Contractor's obligations under the Contract.
Engineer at Liberty to Object	16.2	The Engineer shall be at liberty to object to and require the Contractor to remove forthwith from the Works any person provided by the Contractor who, in the opinion of the Engineer, misconducts himself, or is incompetent or negligent in the proper performance of his duties, or whose presence on Site is otherwise considered by the Engineer to be undesirable, and such person shall not be again allowed upon the Works without the consent of the Engineer. Any person so removed from the Works shall be replaced as soon as possible.

Setting-out	17.1	The Contractor shall be responsible for: (a) the accurate setting-out of the Works in relation to original points, lines and levels of reference given by the Engineer in writing, (b) the correctness, subject as above mentioned, of the position, levels, dimensions and alignment of all parts of the Works, and (c) the provision of all necessary instruments, appliances and labour in connection with the foregoing responsibilities. If, at any time during the execution of the Works, any error appears in the position, levels, dimensions or alignment of any part of the Works, the Contractor, on being required so to do by the Engineer, shall, at his own cost, rectify such error to the satisfaction of the Engineer, unless such error is based on incorrect data supplied in writing by the Engineer, in which case the Engineer shall determine an addition to the Contract Price in accordance with Clause 52 and shall notify the Contractor accordingly, with a copy to the Employer. The checking of any setting-out or of any line or level by the Engineer shall not in any way relieve the Contractor of his responsibility for the accuracy thereof and the Contractor shall carefully protect and preserve all bench-marks, sight-rails, pegs and other things used in setting-out the Works.
Boreholes and Exploratory Excavation	18.1	If, at any time during the execution of the Works, the Engineer requires the Contractor to make boreholes or to carry out exploratory excavation, such requirement shall be the subject of an instruction in accordance with Clause 51, unless an item or a Provisional Sum in respect of such work is included in the Bill of Quantities.
Safety, Security and Protection of the Environment	19.1	The Contractor shall, throughout the execution and completion of the Works and the remedying of any defects therein: (a) have full regard for the safety of all persons entitled to be upon the Site and keep the Site (so far as the same is under his control) and the Works (so far as the same are not completed or occupied by the Employer) in an orderly state appropriate to the avoidance of danger to such persons, and (b) provide and maintain at his own cost all lights, guards, fencing, warning signs and watching, when and where necessary or required by the Engineer or by any duly constituted authority, for the protection of the Works or for the safety and convenience of the public or others, and (c) take all reasonable steps to protect the environment on and off the Site and to avoid damage or nuisance to persons or to property of the public or others resulting from pollution, noise or other causes arising as a consequence of his methods of operation.
Employer's Responsibilities	19.2	If under Clause 31 the Employer shall carry out work on the Site with his own workmen he shall, in respect of such work: (a) have full regard to the safety of all persons entitled to be upon the Site, and (b) keep the Site in an orderly state appropriate to the avoidance of danger to such persons. If under Clause 31 the Employer shall employ other contractors on the Site he shall require them to have the same regard for safety and avoidance of danger.
Care of Works	20.1	The Contractor shall take full responsibility for the care of the Works and materials and Plant for incorporation therein from the Commencement Date until the date of issue of the Taking-Over Certificate for the whole of the Works, when the responsibility for the said care shall pass to the Employer. Provided that: (a) if the Engineer issues a Taking-Over Certificate for any Section or part of the Permanent Works the Contractor shall cease to be liable for the care of that Section or part from the date of issue of the Taking-Over Certificate, when the responsibility for the care of that Section or part shall pass to the Employer, and

(b) the Contractor shall take full responsibility for the care of any outstanding Works and materials and Plant for incorporation therein which he undertakes to finish during the Defects Liability Period until such outstanding Works have been completed pursuant to Clause 49.

Responsibility to Rectify Loss or Damage

20.2 If any loss or damage happens to the Works, or any part thereof, or materials or Plant for incorporation therein, during the period for which the Contractor is responsible for the care thereof, from any cause whatsoever, other than the risks defined in Sub-Clause 20.4, the Contractor shall, at his own cost, rectify such loss or damage so that the Permanent Works conform in every respect with the provisions of the Contract to the satisfaction of the Engineer. The Contractor shall also be liable for any loss or damage to the Works occasioned by him in the course of any operations carried out by him for the purpose of complying with his obligations under Clauses 49 and 50.

Loss or Damage Due to Employer's Risks

20.3 In the event of any such loss or damage happening from any of the risks defined in Sub-Clause 20.4, or in combination with other risks, the Contractor shall, if and to the extent required by the Engineer, rectify the loss or damage and the Engineer shall determine an addition to the Contract Price in accordance with Clause 52 and shall notify the Contractor accordingly, with a copy to the Employer. In the case of a combination of risks causing loss or damage any such determination shall take into account the proportional responsibility of the Contractor and the Employer.

Employer's Risks

20.4 The Employer's risks are:

- (a) war, hostilities (whether war be declared or not), invasion, act of foreign enemies,
- (b) rebellion, revolution, insurrection, or military or usurped power, or civil war,
- (c) ionising radiations, or contamination by radio-activity from any nuclear fuel or from any nuclear waste from the combustion of nuclear fuel, radio-active toxic explosive, or other hazardous properties of any explosive nuclear assembly or nuclear component thereof,
- (d) pressure waves caused by aircraft or other aerial devices travelling at sonic or supersonic speeds,
- (e) riot, commotion or disorder, unless solely restricted to employees of the Contractor or of his Subcontractors and arising from the conduct of the Works
- (f) loss or damage due to the use or occupation by the Employer of any Section or part of the Permanent Works, except as may be provided for in the Contract,
- (g) loss or damage to the extent that it is due to the design of the Works, other than any part of the design provided by the Contractor or for which the Contractor is responsible,
- (h) any operation of the forces of nature against which an experienced contractor could not reasonably have been expected to take precautions.

Insurance of Works and Contractor's Equipment

21.1 The Contractor shall, without limiting his or the Employer's obligations and responsibilities under Clause 20, insure:

- (a) the Works, together with materials and Plant for incorporation therein, to the full replacement cost
- (b) an additional sum of 15 per cent of such replacement cost, or as may be specified in Part II of these Conditions, to cover any additional costs of and incidental to the rectification of loss or damage including professional fees and the cost of demolishing and removing any part of the Works and of removing debris of whatsoever nature
- (c) the Contractor's Equipment and other things brought onto the Site by the Contractor, for a sum sufficient to provide for their replacement at the Site.

Scope of Cover	21.2	The insurance in paragraphs (a) and (b) of Sub-Clause 21.1 shall be in the joint names of the Contractor and the Employer and shall cover: (a) the Employer and the Contractor against all loss or damage from whatsoever cause arising, other than as provided in Sub-Clause 21.4, from the start of work at the Site until the date of issue of the relevant Taking-Over Certificate in respect of the Works or any Section or part thereof as the case may be, and (b) the Contractor for his liability: (i) during the Defects Liability Period for loss or damage arising from a cause occurring prior to the commencement of the Defects Liability Period, and (ii) for loss or damage occasioned by the Contractor in the course of any operations carried out by him for the purpose of complying with his obligations under Clauses 49 and 50.
Responsibility for Amounts not Recovered	21.3	Any amounts not insured or not recovered from the insurers shall be borne by the Employer or the Contractor in accordance with their responsibilities under Clause 20.
Exclusions	21.4	There shall be no obligation for the insurances in Sub-Clause 21.1 to include loss or damage caused by (a) war, hostilities (where war be declared or not), invasion, act of foreign enemies, (b) rebellion, revolution, insurrection, or military or usurped power, or civil war, (c) ionising radiations, or contamination by radio-activity from any nuclear fuel, or from any nuclear waste from the combustion of nuclear fuel, radio-active toxic explosive, or other hazardous properties of any explosive nuclear assembly or nuclear component thereof, (d) pressure waves caused by aircraft or other aerial devices travelling at sonic or supersonic speeds.
Damage to Persons and Property	22.1	The Contractor shall, except if and so far as the Contract provides otherwise, indemnify the Employer against all losses and claims in respect of: (a) death of or injury to any person, or (b) loss of or damage to any property (other than the Works), which may arise out of or in consequence of the execution and completion of the Works and the remedying of any defects therein, and against all claims, proceedings, damages, costs, charges and expenses whatsoever in respect thereof or in relation thereto, subject to the exceptions defined in Sub-Clause 22.2.
Exceptions	22.2	The "exceptions" referred to in Sub-Clause 22.1 are: (a) the permanent use or occupation of land by the Works, or any part thereof, (b) the right of the Employer to execute the Works, or any part thereof, on, over, under, in or through any land, (c) damage to property which is the unavoidable result of the execution and completion of the Works, or the remedying of any defects therein, in accordance with the Contract, (d) death of or injury to persons or loss of or damage to property resulting from any act or neglect of the Employer, his agents, servants or other contractors, not being employed by the Contractor, or in respect of any claims, proceedings, damages, costs, charges and expenses in respect thereof or in relation thereto or, where the injury or damage was contributed to by the Contractor, his servants or agents, such part of the said injury or damage as may be just and equitable having regard to the extent of the responsibility of the Employer, his servants or agents or other contractors for the injury or damage.

Indemnity by Employer	22.3	The Employer shall indemnify the Contractor against all claims, proceedings, damages, costs, charges and expenses in respect of the matters referred to in the exceptions defined in Sub-Clause 22.2.
Third Party Insurance (including Employer's Property)	23.1	The Contractor shall, without limiting his or the Employer's obligations and responsibilities under Clause 22, insure, in the joint names of the Contractor and the Employer, against liabilities for death of or injury to any person (other than as provided in Clause 24) or loss of or damage to any property (other than the Works) arising out of the performance of the Contract, other than the exceptions defined in paragraphs (a), (b) and (c) of Sub-Clause 22.2.
Minimum Amount of Insurance	23.2	Such insurance shall be for at least the amount stated in the Appendix to Tender.
Cross Liabilities	23.3	The insurance policy shall include a cross liability clause such that the insurance shall apply to the Contractor and to the Employer as separate insureds.
Accident or Injury to Workmen	24.1	The Employer shall not be liable for or in respect of any damages or compensation payable to any workman or other person in the employment of the Contractor or any Subcontractor, other than death or injury resulting from any act or default of the Employer, his agents or servants. The Contractor shall indemnify and keep indemnified the Employer against all such damages and compensation, other than those for which the Employer is liable as aforesaid, and against all claims, proceedings, damages, costs, charges, and expenses whatsoever in respect thereof or in relation thereto.
Insurance Against Accident to Workmen	24.2	The Contractor shall insure against such liability and shall continue such insurance during the whole of the time that any persons are employed by him on the Works. Provided that, in respect of any persons employed by any Subcontractor, the Contractor's obligations to insure as aforesaid under this Sub-Clause shall be satisfied if the Subcontractor shall have insured against the liability in respect of such persons in such manner that the Employer is indemnified under the policy, but the Contractor shall require such Subcontractor to produce to the Employer, when required, such policy of insurance and the receipt for the payment of the current premium.
Evidence and Terms of Insurances	25.1	The Contractor shall provide evidence to the Employer prior to the start of work at the Site that the insurances required under the Contract have been effected and shall, within 84 days of the Commencement Date, provide the insurance policies to the Employer. When providing such evidence and such policies to the Employer, the Contractor shall notify the Engineer of so doing. Such insurance policies shall be consistent with the general terms agreed prior to the issue of the Letter of Acceptance. The Contractor shall effect all insurances for which he is responsible with insurers and in terms approved by the Employer.
Adequacy of Insurances	25.2	The Contractor shall notify the insurers of changes in the nature, extent or programme for the execution of the Works and ensure the adequacy of the insurances at all times in accordance with the terms of the Contract and shall, when required, produce to the Employer the insurance policies in force and the receipts for payment of the current premiums.
Remedy on Contractor's Failure to Insure	25.3	If the Contractor fails to effect and keep in force any of the insurances required under the Contract, or fails to provide the policies to the Employer within the period required by Sub-Clause 25.1, then and in any such case the Employer may effect and keep in force any such insurances and pay any premium as may be necessary for that purpose and from time to time deduct the amount so paid from any monies due or to become due to the Contractor, or recover the same as a debt due from the Contractor.
Compliance with Policy Conditions	25.4	In the event that the Contractor or the Employer fails to comply with conditions imposed by the insurance policies effected pursuant to the Contract, each shall indemnify the other against all losses and claims arising from such failure.

Compliance with Statutes, Regulations	26.1	The Contractor shall conform in all respects, including by the giving of all notices and the paying of all fees, with the provisions of: (a) any National or State Statute, Ordinance, or other Law, or any regulation, or bye-law of any local or other duly constituted authority in relation to the execution and completion of the Works and the remedying of any defects therein, and (b) the rules and regulations of all public bodies and companies whose property or rights are affected or may be affected in any way by the Works, and the Contractor shall keep the Employer indemnified against all penalties and liability of every kind for breach of any such provisions. Provided always that the Employer shall be responsible for obtaining any planning, zoning or other similar permission required for the Works to proceed and shall indemnify the Contractor in accordance with Sub-Clause 22.3.
Fossils	27.1	All fossils, coins, articles of value or antiquity and structures and other remains or things of geological or archaeological interest discovered on the Site shall, as between the Employer and the Contractor, be deemed to be the absolute property of the Employer. The Contractor shall take reasonable precautions to prevent his workmen or any other persons from removing or damaging any such article or thing and shall, immediately upon discovery thereof and before removal, acquaint the Engineer of such discovery and carry out the Engineer's instructions for dealing with the same. If, by reason of such instructions, the Contractor suffers delay and/or incurs costs then the Engineer shall, after due consultation with the Employer and the Contractor, determine: (a) any extension of time to which the Contractor is entitled under Clause 44, and (b) the amount of such costs, which shall be added to the Contract Price, and shall notify the Contractor accordingly, with a copy to the Employer.
Patent Rights	28.1	The Contractor shall save harmless and indemnify the Employer from and against all claims and proceedings for or on account of infringement of any patent rights, design trademark or name or other protected rights in respect of any Contractor's Equipment, materials or Plant used for or in connection with or for incorporation in the Works and from and against all damages, costs, charges and expenses whatsoever in respect thereof or in relation thereto, except where such infringement results from compliance with the design or Specification provided by the Engineer.
Royalties	28.2	Except where otherwise stated, the Contractor shall pay all tonnage and other royalties, rent and other payments or compensation, if any, for getting stone, sand, gravel, clay or other materials required for the Works.
Interference with Traffic and Adjoining Properties	29.1	All operations necessary for the execution and completion of the Works and the remedying of any defects therein shall, so far as compliance with the requirements of the Contract permits, be carried on so as not to interfere unnecessarily or improperly with: (a) the convenience of the public, or (b) the access to, use and occupation of public or private roads and footpaths to or of properties whether in the possession of the Employer or of any other person. The Contractor shall save harmless and indemnify the Employer in respect of all claims, proceedings, damages, costs, charges and expenses whatsoever arising out of, or in relation to, any such matters insofar as the Contractor is responsible therefor.

Avoidance of Damage to Roads	30.1	The Contractor shall use every reasonable means to prevent any of the roads or bridges communicating with or on the routes to the Site from being damaged or injured by any traffic of the Contractor or any of his Subcontractors and, in particular, shall select routes, choose and use vehicles and restrict and distribute loads so that any such extraordinary traffic as will inevitably arise from the moving of materials, Plant, Contractor's Equipment or Temporary Works from and to the Site shall be limited, as far as reasonably possible, and so that no unnecessary damage or injury may be occasioned to such roads and bridges.
Transport of Contractor's Equipment or Temporary Works	30.2	Insofar as the Contract otherwise provides, the Contractor shall be responsible for and shall pay the cost of strengthening any bridges or altering or improving any road communicating with or on the routes to the Site to facilitate the movement of Contractor's Equipment or Temporary Works and the Contractor shall indemnify and keep indemnified the Employer against all claims for damage to any such road or bridge caused by such movement, including such claims as may be made directly against the Employer, and shall negotiate and pay all claims arising solely out of such damage.
Transport of Materials or Plant	30.3	If, notwithstanding Sub-Clause 30.1, any damage occurs to any bridge or road communicating with or on the routes to the Site arising from the transport of materials or Plant, the Contractor shall notify the Engineer with a copy to the Employer, as soon as he becomes aware of such damage or as soon as he receives any claim from the authority entitled to make such claim. Where under any law or regulation the haulier of such materials or Plant is required to indemnify the road authority against damage the Employer shall not be liable for any costs, charges or expenses in respect thereof or in relation thereto. In other cases the Employer shall negotiate the settlement of and pay all sums due in respect of such claim and shall indemnify the Contractor in respect thereof and in respect of all claims, proceedings, damages, costs, charges and expenses in relation thereto. Provided that if and so far as any such claim or part thereof is, in the opinion of the Engineer, due to any failure on the part of the Contractor to observe and perform his obligations under Sub-Clause 30.1, then the amount, determined by the Engineer, after due consultation with the Employer and the Contractor, to be due to such failure shall be recoverable from the Contractor by the Employer and may be deducted by the Employer from any sum due or to become due to the Contractor and the Engineer shall notify the Contractor accordingly, with a copy to the Employer. Provided also that the Employer shall notify the Contractor whenever a settlement is to be negotiated, where any amount may be due from the Contractor, the Employer shall consult with the Contractor before such settlement is agreed.
Waterborne Traffic	30.4	Where the nature of the Works is such as to require the use by the Contractor of waterborne transport the foregoing provisions of this Clause shall be construed as though "road" included a lock, dock, sea wall or other structure related to a waterway and "vehicle" included craft, and shall have effect accordingly.
Opportunities for Other Contractors	31.1	The Contractor shall, in accordance with the requirements of the Engineer, afford all reasonable opportunities for carrying out their work to: (a) any other contractors employed by the Employer and their workmen, (b) the workmen of the Employer, and (c) the workmen of any duly constituted authorities who may be employed in the execution on or near the Site of any work not included in the Contract or of any contract which the Employer may enter into in connection with or ancillary to the Works.
Facilities for Other Contractors	31.2	If, however, pursuant to Sub-Clause 31.1 the Contractor shall, on the written request of the Engineer: (a) make available to any such other contractor, or to the Employer or any such authority, any roads or ways for the maintenance of which the Contractor is responsible, or

(b) permit the use, by any such, of Temporary Works or Contractor's Equipment on the Site, or

(c) provide any other service of whatsoever nature for any such,

the Engineer shall determine an addition to the Contract Price in accordance with Clause 52 and shall notify the Contractor accordingly, with a copy to the Employer.

**Contractor to
Keep Site Clear**

32.1 During the execution of the Works the Contractor shall keep the Site reasonably free from all unnecessary obstruction and shall store or dispose of any Contractor's Equipment and surplus materials and clear away and remove from the Site any wreckage, rubbish or Temporary Works no longer required.

**Clearance of Site
on Completion**

33.1 Upon the issue of any Taking-Over Certificate the Contractor shall clear away and remove from that part of the Site to which such Taking-Over Certificate relates all Contractor's Equipment, surplus material, rubbish and Temporary Works of every kind, and leave such part of the Site and Works clean and in a workmanlike condition to the satisfaction of the Engineer. Provided that the Contractor shall be entitled to retain on Site, until the end of the Defects Liability Period, such materials, Contractor's Equipment and Temporary Works as are required by him for the purpose of fulfilling his obligations during the Defects Liability Period.

Labour

**Engagement of
Staff and Labour**

34.1 The Contractor shall, unless otherwise provided in the Contract, make his own arrangements for the engagement of all staff and labour, local or other, and for their payment, housing, feeding and transport.

**Returns of Labour
and Contractor's
Equipment**

35.1 The Contractor shall, if required by the Engineer, deliver to the Engineer a return in detail, in such form and at such intervals as the Engineer may prescribe, showing the staff and the numbers of the several classes of labour from time to time employed by the Contractor on the Site and such information respecting Contractor's Equipment as the Engineer may require.

Materials, Plant and Workmanship

**Quality of
Materials, Plant
and Workmanship**

36.1 All materials, Plant and workmanship shall be

(a) of the respective kinds described in the Contract and in accordance with the Engineer's instructions, and

(b) subjected from time to time to such tests as the Engineer may require at the place of manufacture, fabrication or preparation, or on the Site or at such other place or places as may be specified in the Contract, or at all or any of such places.

The Contractor shall provide such assistance, labour, electricity, fuels, stores, apparatus and instruments as are normally required for examining, measuring and testing any materials or Plant and shall supply samples of materials, before incorporation in the Works, for testing as may be selected and required by the Engineer.

Cost of Samples

36.2 All samples shall be supplied by the Contractor at his own cost if the supply thereof is clearly intended by or provided for in the Contract.

Cost of Tests

36.3 The cost of making any test shall be borne by the Contractor if such test is

(a) clearly intended by or provided for in the Contract, or

(b) particularised in the Contract (in cases only of a test under load or of a test to ascertain whether the design of any finished or partially finished work is appropriate for the purposes which it was intended to fulfil) in sufficient detail to enable the Contractor to price or allow for the same in his Tender.

Cost of Tests not Provided for	36.4	If any test required by the Engineer which is (a) not so intended by or provided for, or (b) (in the cases above mentioned) not so particularised, or (c) (though so intended or provided for) required by the Engineer to be carried out at any place other than the Site or the place of manufacture, fabrication or preparation of the materials or Plant tested, shows the materials, Plant or workmanship not to be in accordance with the provisions of the Contract to the satisfaction of the Engineer, then the cost of such test shall be borne by the Contractor, but in any other case Sub-Clause 36.5 shall apply.
Engineer's Determination where Tests not Provided for	36.5	Where, pursuant to Sub-Clause 36.4, this Sub-Clause applies the Engineer shall, after due consultation with the Employer and the Contractor, determine: (a) any extension of time to which the Contractor is entitled under Clause 44, and (b) the amount of such costs, which shall be added to the Contract Price, and shall notify the Contractor accordingly, with a copy to the Employer.
Inspection of Operations	37.1	The Engineer, and any person authorised by him, shall at all reasonable times have access to the Site and to all workshops and places where materials or Plant are being manufactured, fabricated or prepared for the Works and the Contractor shall afford every facility for and every assistance in obtaining the right to such access.
Inspection and Testing	37.2	The Engineer shall be entitled, during manufacture, fabrication or preparation to inspect and test the materials and Plant to be supplied under the Contract. If materials or Plant are being manufactured, fabricated or prepared in workshops or places other than those of the Contractor, the Contractor shall obtain permission for the Engineer to carry out such inspection and testing in those workshops or places. Such inspection or testing shall not release the Contractor from any obligation under the Contract.
Dates for Inspection and Testing	37.3	The Contractor shall agree with the Engineer on the time and place for the inspection or testing of any materials or Plant as provided in the Contract. The Engineer shall give the Contractor not less than 24 hours notice of his intention to carry out the inspection or to attend the tests. If the Engineer, or his duly authorised representative, does not attend on the date agreed, the Contractor may, unless otherwise instructed by the Engineer, proceed with the tests, which shall be deemed to have been made in the presence of the Engineer. The Contractor shall forthwith forward to the Engineer duly certified copies of the test readings. If the Engineer has not attended the tests, he shall accept the said readings as accurate.
Rejection	37.4	If, at the time and place agreed in accordance with Sub-Clause 37.3, the materials or Plant are not ready for inspection or testing or if, as a result of the inspection or testing referred to in this Clause, the Engineer determines that the materials or Plant are defective or otherwise not in accordance with the Contract, he may reject the materials or Plant and shall notify the Contractor thereof immediately. The notice shall state the Engineer's objections with reasons. The Contractor shall then promptly make good the defect or ensure that rejected materials or Plant comply with the Contract. If the Engineer so requests, the tests of rejected materials or Plant shall be made or repeated under the same terms and conditions. All costs incurred by the Employer by the repetition of the tests shall, after due consultation with the Employer and the Contractor, be determined by the Engineer and shall be recoverable from the Contractor by the Employer and may be deducted from any monies due or to become due to the Contractor and the Engineer shall notify the Contractor accordingly, with a copy to the Employer.

Independent Inspection	37.5	The Engineer may delegate inspection and testing of materials or Plant to an independent inspector. Any such delegation shall be effected in accordance with Sub-Clause 2.4 and for this purpose such independent inspector shall be considered as an assistant of the Engineer. Notice of such appointment (not being less than 14 days) shall be given by the Engineer to the Contractor.
Examination of Work before Covering up	38.1	No part of the Works shall be covered up or put out of view without the approval of the Engineer and the Contractor shall afford full opportunity for the Engineer to examine and measure any such part of the Works which is about to be covered up or put out of view and to examine foundations before any part of the Works is placed thereon. The Contractor shall give notice to the Engineer whenever any such part of the Works or foundations is or are ready or about to be ready for examination and the Engineer shall, without unreasonable delay, unless he considers it unnecessary and advises the Contractor accordingly, attend for the purpose of examining and measuring such part of the Works or of examining such foundations.
Uncovering and Making Openings	38.2	The Contractor shall uncover any part of the Works or make openings in or through the same as the Engineer may from time to time instruct and shall reinstate and make good such part. If any such part has been covered up or put out of view after compliance with the requirement of Sub-Clause 38.1 and is found to be executed in accordance with the Contract, the Engineer shall, after due consultation with the Employer and the Contractor, determine the amount of the Contractor's costs in respect of such of uncovering, making openings in or through, reinstating and making good the same, which shall be added to the Contract Price, and shall notify the Contractor accordingly, with a copy to the Employer. In any other case all costs shall be borne by the Contractor.
Removal of Improper Work, Materials or Plant	39.1	The Engineer shall have authority to issue instructions from time to time, for: (a) the removal from the Site, within such time or times as may be specified in the instruction, of any materials or Plant which, in the opinion of the Engineer, are not in accordance with the Contract, (b) the substitution of proper and suitable materials or Plant, and (c) the removal and proper re-execution, notwithstanding any previous test thereof or interim payment therefor, of any work which, in respect of (i) materials, Plant or workmanship, or (ii) design by the Contractor or for which he is responsible, is not, in the opinion of the Engineer, in accordance with the Contract.
Default of Contractor in Compliance	39.2	In case of default on the part of the Contractor in carrying out such instruction within the time specified therein or, if none, within a reasonable time, the Employer shall be entitled to employ and pay other persons to carry out the same and all costs consequent thereon or incidental thereto shall, after due consultation with the Employer and the Contractor, be determined by the Engineer and shall be recoverable from the Contractor by the Employer, and may be deducted by the Employer from any monies due or to become due to the Contractor and the Engineer shall notify the Contractor accordingly, with a copy to the Employer.

Suspension

Suspension of Work	40.1	The Contractor shall, on the instructions of the Engineer, suspend the progress of the Works or any part thereof for such time and in such manner as the Engineer may consider necessary and shall, during such suspension, properly protect and secure the Works or such part thereof so far as is necessary in the opinion of the Engineer. Unless such suspension is (a) otherwise provided for in the Contract, or
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(b) necessary by reason of some default of or breach of contract by the Contractor or for which he is responsible, or

(c) necessary by reason of climatic conditions on the Site, or

(d) necessary for the proper execution of the Works or for the safety of the Works or any part thereof (save to the extent that such necessity arises from any act or default by the Engineer or the Employer or from any of the risks defined in Sub-Clause 20.4),

Sub-Clause 40.2 shall apply.

**Engineer's
Determination
following
Suspension**

40.2 Where, pursuant to Sub-Clause 40.1, this Sub-Clause applies the Engineer shall, after due consultation with the Employer and the Contractor, determine

(a) any extension of time to which the Contractor is entitled under Clause 44, and

(b) the amount, which shall be added to the Contract Price, in respect of the cost incurred by the Contractor by reason of such suspension,

and shall notify the Contractor accordingly, with a copy to the Employer.

**Suspension
lasting more
than 84 Days**

40.3 If the progress of the Works or any part thereof is suspended on the written instructions of the Engineer and if permission to resume work is not given by the Engineer within a period of 84 days from the date of suspension then, unless such suspension is within paragraph (a), (b), (c) or (d) of Sub-Clause 40.1, the Contractor may give notice to the Engineer requiring permission, within 28 days from the receipt thereof, to proceed with the Works or that part thereof in regard to which progress is suspended. If, within the said time, such permission is not granted, the Contractor may, but is not bound to, elect to treat the suspension, where it affects part only of the Works, as an omission of such part under Clause 51 by giving a further notice to the Engineer to that effect, or, where it affects the whole of the Works, treat the suspension as an event of default by the Employer and terminate his employment under the Contract in accordance with the provisions of Sub-Clause 69.1, whereupon the provisions of Sub-Clauses 69.2 and 69.3 shall apply.

Commencement and Delays

**Commencement
of Works**

41.1 The Contractor shall commence the Works as soon as is reasonably possible after the receipt by him of a notice to this effect from the Engineer, which notice shall be issued within the time stated in the Appendix to Tender after the date of the Letter of Acceptance. Thereafter, the Contractor shall proceed with the Works with due expedition and without delay.

**Possession of
Site and Access
There to**

42.1 Save insofar as the Contract may prescribe:

(a) the extent of portions of the Site of which the Contractor is to be given possession from time to time, and

(b) the order in which such portions shall be made available to the Contractor and subject to any requirement in the Contract as to the order in which the Works shall be executed, the Employer will, with the Engineer's notice to commence the Works, give to the Contractor possession of

(c) so much of the Site, and

(d) such access as, in accordance with the Contract, is to be provided by the Employer

as may be required to enable the Contractor to commence and proceed with the execution of the Works in accordance with the programme referred to in Clause 14, if any, and otherwise in accordance with such reasonable proposals as the Contractor shall, by notice to the Engineer with a copy to the Employer, make. The Employer will, from time to time as the Works proceed, give to the Contractor possession of such further portions of the Site as may be required to enable the Contractor to proceed with the execution of the Works with due dispatch in accordance with such programme or proposals, as the case may be.

Failure to Give Possession	42.2	If the Contractor suffers delay and/or incurs costs from failure on the part of the Employer to give possession in accordance with the terms of Sub-Clause 42.1, the Engineer shall, after due consultation with the Employer and the Contractor, determine: (a) any extension of time to which the Contractor is entitled under Clause 44, and (b) the amount of such costs, which shall be added to the Contract Price, and shall notify the Contractor accordingly, with a copy to the Employer.
Wayleaves and Facilities	42.3	The Contractor shall bear all costs and charges for special or temporary wayleaves required by him in connection with access to the Site. The Contractor shall also provide at his own cost any additional facilities outside the Site required by him for the purposes of the Works.
Time for Completion	43.1	The whole of the Works and, if applicable, any Section required to be completed within a particular time as stated in the Appendix to Tender, shall be completed, in accordance with the provisions of Clause 48, within the time stated in the Appendix to Tender for the whole of the Works or the Section (as the case may be), calculated from the Commencement Date, or such extended time as may be allowed under Clause 44.
Extension of Time for Completion	44.1	In the event of (a) the amount or nature of extra or additional work, or (b) any cause of delay referred to in these Conditions, or (c) exceptionally adverse climatic conditions, or (d) any delay, impediment or prevention by the Employer, or (e) other special circumstances which may occur, other than through a default of or breach of contract by the Contractor or for which he is responsible, being such as fairly to entitle the Contractor to an extension of the Time for Completion of the Works, or any Section or part thereof, the Engineer shall, after due consultation with the Employer and the Contractor, determine the amount of such extension and shall notify the Contractor accordingly, with a copy to the Employer.
Contractor to Provide Notification and Detailed Particulars	44.2	Provided that the Engineer is not bound to make any determination unless the Contractor has (a) within 28 days after such event has first arisen notified the Engineer with a copy to the Employer, and (b) within 28 days, or such other reasonable time as may be agreed by the Engineer, after such notification submitted to the Engineer detailed particulars of any extension of time to which he may consider himself entitled in order that such submission may be investigated at the time.

Interim Determination of Extension	44.3	Provided also that where an event has a continuing effect such that it is not practicable for the Contractor to submit detailed particulars within the period of 28 days referred to in Sub-Clause 44.2(b), he shall nevertheless be entitled to an extension of time provided that he has submitted to the Engineer interim particulars at intervals of not more than 28 days and final particulars within 28 days of the end of the effects resulting from the event. On receipt of such interim particulars, the Engineer shall, without undue delay, make an interim determination of extension of time and, on receipt of the final particulars, the Engineer shall review all the circumstances and shall determine an overall extension of time in regard to the event. In both such cases the Engineer shall make his determination after due consultation with the Employer and the Contractor and shall notify the Contractor of the determination, with a copy to the Employer. No final review shall result in a decrease of any extension of time already determined by the Engineer.
Restriction on Working Hours	45.1	Subject to any provision to the contrary contained in the Contract, none of the Works shall, save as hereinafter provided, be carried on during the night or on locally recognised days of rest without the consent of the Engineer, except when work is unavoidable or absolutely necessary for the saving of life or property or for the safety of the Works, in which case the Contractor shall immediately advise the Engineer. Provided that the provisions of this Clause shall not be applicable in the case of any work which it is customary to carry out by multiple shifts.
Rate of Progress	46.1	If for any reason, which does not entitle the Contractor to an extension of time, the rate of progress of the Works or any Section is at any time, in the opinion of the Engineer, too slow to comply with the Time for Completion, the Engineer shall so notify the Contractor who shall thereupon take such steps as are necessary, subject to the consent of the Engineer, to expedite progress so as to comply with the Time for Completion. The Contractor shall not be entitled to any additional payment for taking such steps. If, as a result of any notice given by the Engineer under this Clause, the Contractor considers that it is necessary to do any work at night or on locally recognised days of rest, he shall be entitled to seek the consent of the Engineer so to do. Provided that if any steps, taken by the Contractor in meeting his obligations under this Clause, involve the Employer in additional supervision costs, such costs shall, after due consultation with the Employer and the Contractor, be determined by the Engineer and shall be recoverable from the Contractor by the Employer, and may be deducted by the Employer from any monies due or to become due to the Contractor and the Engineer shall notify the Contractor accordingly, with a copy to the Employer.
Liquidated Damages for Delay	47.1	If the Contractor fails to comply with the Time for Completion in accordance with Clause 48, for the whole of the Works or, if applicable, any Section within the relevant time prescribed by Clause 43, then the Contractor shall pay to the Employer the relevant sum stated in the Appendix to Tender as liquidated damages for such default and not as a penalty (which sum shall be the only monies due from the Contractor for such default) for every day or part of a day which shall elapse between the relevant Time for Completion and the date stated in a Taking-Over Certificate of the whole of the Works or the relevant Section, subject to the applicable limit stated in the Appendix to Tender. The Employer may, without prejudice to any other method of recovery, deduct the amount of such damages from any monies due or to become due to the Contractor. The payment or deduction of such damages shall not relieve the Contractor from his obligation to complete the Works, or from any other of his obligations and liabilities under the Contract.
Reduction of Liquidated Damages	47.2	If, before the Time for Completion of the whole of the Works or, if applicable, any Section, a Taking-Over Certificate has been issued for any part of the Works or of a Section, the liquidated damages for delay in completion of the remainder of the Works or of that Section shall, for any period of delay after the date stated in such Taking-Over Certificate, and in the absence of alternative provisions in the Contract, be reduced in the proportion which the value of the part so certified bears to the value of the whole of the Works or Section, as applicable. The

provisions of this Sub-Clause shall only apply to the rate of liquidated damages and shall not affect the limit thereof.

Taking-Over Certificate **48.1** When the whole of the Works have been substantially completed and have satisfactorily passed any Tests on Completion prescribed by the Contract, the Contractor may give a notice to that effect to the Engineer, with a copy to the Employer, accompanied by a written undertaking to finish with due expedition any outstanding work during the Defects Liability Period. Such notice and undertaking shall be deemed to be a request by the Contractor for the Engineer to issue a Taking-Over Certificate in respect of the Works. The Engineer shall, within 21 days of the date of delivery of such notice, either issue to the Contractor, with a copy to the Employer, a Taking-Over Certificate, stating the date on which, in his opinion, the Works were substantially completed in accordance with the Contract, or give instructions in writing to the Contractor specifying all the work which, in the Engineer's opinion, is required to be done by the Contractor before the issue of such Certificate. The Engineer shall also notify the Contractor of any defects in the Works affecting substantial completion that may appear after such instructions and before completion of the Works specified therein. The Contractor shall be entitled to receive such Taking-Over Certificate within 21 days of completion, to the satisfaction of the Engineer, of the Works so specified and remedying any defects so notified.

Taking Over of Sections or Parts **48.2** Similarly, in accordance with the procedure set out in Sub-Clause 48.1, the Contractor may request and the Engineer shall issue a Taking-Over Certificate in respect of:

(a) any Section in respect of which a separate Time for Completion is provided in the Appendix to Tender, or

(b) any substantial part of the Permanent Works which has been both completed to the satisfaction of the Engineer and, otherwise than as provided for in the Contract, occupied or used by the Employer, or

(c) any part of the Permanent Works which the Employer has elected to occupy or use prior to completion (where such prior occupation or use is not provided for in the Contract or has not been agreed by the Contractor as a temporary measure).

Substantial Completion of Parts **48.3** If any part of the Permanent Works has been substantially completed and has satisfactorily passed any Tests on Completion prescribed by the Contract, the Engineer may issue a Taking-Over Certificate in respect of that part of the Permanent Works before completion of the whole of the Works and, upon the issue of such Certificate, the Contractor shall be deemed to have undertaken to complete with due expedition any outstanding work in that part of the Permanent Works during the Defects Liability Period.

Surfaces Requiring Reinstatement **48.4** Provided that a Taking-Over Certificate given in respect of any Section or part of the Permanent Works before completion of the whole of the Works shall not be deemed to certify completion of any ground or surfaces requiring reinstatement, unless such Taking-Over Certificate shall expressly so state.

Defects Liability

Defects Liability Period **49.1** In these Conditions the expression "Defects Liability Period" shall mean the defects liability period named in the Appendix to Tender, calculated from:

(a) the date of completion of the Works certified by the Engineer in accordance with Clause 48, or

(b) in the event of more than one certificate having been issued by the Engineer under Clause 48, the respective dates so certified

and in relation to the Defects Liability Period the expression "the Works" shall be construed accordingly.

**Completion of
Outstanding Work
and Remedying
Defects**

49.2 To the intent that the Works shall, at or as soon as practicable after the expiration of the Defects Liability Period, be delivered to the Employer in the condition required by the Contract, fair wear and tear excepted, to the satisfaction of the Engineer, the Contractor shall:

(a) complete the work, if any, outstanding on the date stated in the Taking-Over Certificate as soon as practicable after such date and

(b) execute all such work of amendment, reconstruction, and remedying defects, shrinkages or other faults as the Engineer may, during the Defects Liability Period or within 14 days after its expiration, as a result of an inspection made by or on behalf of the Engineer prior to its expiration, instruct the Contractor to execute.

**Cost of
Remedying
Defects**

49.3 All work referred to in Sub-Clause 49.2 (b) shall be executed by the Contractor at his own cost if the necessity thereof is, in the opinion of the Engineer, due to:

(a) the use of materials, Plant or workmanship not in accordance with the Contract, or

(b) where the Contractor is responsible for the design of part of the Permanent Works, any fault in such design, or

(c) the neglect or failure on the part of the Contractor to comply with any obligation, expressed or implied, on the Contractor's part under the Contract.

If, in the opinion of the Engineer, such necessity is due to any other cause, he shall determine an addition to the Contract Price in accordance with Clause 52 and shall notify the Contractor accordingly, with a copy to the Employer.

**Contractor's
Failure to Carry
Out Instructions**

49.4 In case of default on the part of the Contractor in carrying out such instruction within a reasonable time, the Employer shall be entitled to employ and pay other persons to carry out the same and if such work is work which, in the opinion of the Engineer, the Contractor was liable to do at his own cost under the Contract, then all costs consequent thereon or incidental thereto shall, after due consultation with the Employer and the Contractor, be determined by the Engineer and shall be recoverable from the Contractor by the Employer, and may be deducted by the Employer from any monies due or to become due to the Contractor and the Engineer shall notify the Contractor accordingly, with a copy to the Employer.

**Contractor
to Search**

50.1 If any defect, shrinkage or other fault in the Works appears at any time prior to the end of the Defects Liability Period, the Engineer may instruct the Contractor, with copy to the Employer, to search under the directions of the Engineer for the cause thereof. Unless such defect, shrinkage or other fault is one for which the Contractor is liable under the Contract, the Engineer shall, after due consultation with the Employer and the Contractor, determine the amount in respect of the costs of such search incurred by the Contractor, which shall be added to the Contract Price and shall notify the Contractor accordingly, with a copy to the Employer. If such defect, shrinkage or other fault is one for which the Contractor is liable, the cost of the work carried out in searching as aforesaid shall be borne by the Contractor and he shall in such case remedy such defect, shrinkage or other fault at his own cost in accordance with the provisions of Clause 49.

Alterations, Additions and Omissions

Variations

51.1 The Engineer shall make any variation of the form, quality or quantity of the Works or any part thereof that may, in his opinion, be necessary and for that purpose, or if for any other reason it shall, in his opinion, be appropriate, he shall have the authority to instruct the Contractor to do and the Contractor shall do any of the following:

(a) increase or decrease the quantity of any work included in the Contract,

(b) omit any such work (but not if the omitted work is to be carried out by the Employer or by another contractor),

- (c) change the character or quality or kind of any such work,
- (d) change the levels, lines, position and dimensions of any part of the Works,
- (e) execute additional work of any kind necessary for the completion of the Works,
- (f) change any specified sequence or timing of construction of any part of the Works.

No such variation shall in any way vitiate or invalidate the Contract, but the effect, if any, of all such variations shall be valued in accordance with Clause 52. Provided that where the issue of an instruction to vary the Works is necessitated by some default of or breach of contract by the Contractor or for which he is responsible, any additional cost attributable to such default shall be borne by the Contractor.

Instructions for Variations	51.2	The Contractor shall not make any such variation without an instruction of the Engineer. Provided that no instruction shall be required for increase or decrease in the quantity of any work where such increase or decrease is not the result of an instruction given under this Clause, but is the result of the quantities exceeding or being less than those stated in the Bill of Quantities.
Valuation of Variations	52.1	All variations referred to in Clause 51 and any additions to the Contract Price which are required to be determined in accordance with Clause 52 (for the purposes of this Clause referred to as "varied work"), shall be valued at the rates and prices set out in the Contract if, in the opinion of the Engineer, the same shall be applicable. If the Contract does not contain any rates or prices applicable to the varied work, the rates and prices in the Contract shall be used as the basis for valuation so far as may be reasonable, failing which, after due consultation by the Engineer with the Employer and the Contractor, suitable rates or prices shall be agreed upon between the Engineer and the Contractor. In the event of disagreement the Engineer shall fix such rates or prices as are, in his opinion, appropriate and shall notify the Contractor accordingly, with a copy to the Employer. Until such time as rates or prices are agreed or fixed, the Engineer shall determine provisional rates or prices to enable on-account payments to be included in certificates issued in accordance with Clause 60.
Power of Engineer to Fix Rates	52.2	Provided that if the nature or amount of any varied work relative to the nature or amount of the whole of the Works or to any part thereof, is such that, in the opinion of the Engineer, the rate or price contained in the Contract for any item of the Works is, by reason of such varied work, rendered inappropriate or inapplicable, then, after due consultation by the Engineer with the Employer and the Contractor, a suitable rate or price shall be agreed upon between the Engineer and the Contractor. In the event of disagreement the Engineer shall fix such other rate or price as is, in his opinion, appropriate and shall notify the Contractor accordingly, with a copy to the Employer. Until such time as rates or prices are agreed or fixed, the Engineer shall determine provisional rates or prices to enable on-account payments to be included in certificates issued in accordance with Clause 60. Provided also that no varied work instructed to be done by the Engineer pursuant to Clause 51 shall be valued under Sub-Clause 52.1 or under this Sub-Clause unless, within 14 days of the date of such instruction and, other than in the case of omitted work, before the commencement of the varied work, notice shall have been given either: (a) by the Contractor to the Engineer of his intention to claim extra payment or a varied rate or price, or (b) by the Engineer to the Contractor of his intention to vary a rate or price.
Variations Exceeding 15 per cent	52.3	If, on the issue of the Taking-Over Certificate for the whole of the Works, it is found that as a result of: (a) all varied work valued under Sub-Clauses 52.1 and 52.2, and

(b) all adjustments upon measurement of the estimated quantities set out in the Bill of Quantities, excluding Provisional Sums, dayworks and adjustments of price made under Clause 70,

but not from any other cause, there have been additions to or deductions from the Contract Price which taken together are in excess of 15 per cent of the "Effective Contract Price" (which for the purposes of this Sub-Clause shall mean the Contract Price, excluding Provisional Sums and allowance for dayworks, if any then and in such event (subject to any action already taken under any other Sub-Clause of this Clause), after due consultation by the Engineer with the Employer and the Contractor, there shall be added to or deducted from the Contract Price such further sum as may be agreed between the Contractor and the Engineer or, failing agreement, determined by the Engineer having regard to the Contractor's Site and general overhead costs of the Contract. The Engineer shall notify the Contractor of any determination made under this Sub-Clause, with a copy to the Employer. Such sum shall be based only on the amount by which such additions or deductions shall be in excess of 15 per cent of the Effective Contract Price.

Daywork 52.4 The Engineer may, if in his opinion it is necessary or desirable, issue an instruction that any varied work shall be executed on a daywork basis. The Contractor shall then be paid for such varied work under the terms set out in the daywork schedule included in the Contract and at the rates and prices affixed thereto by him in the Tender.

The Contractor shall furnish to the Engineer such receipts or other vouchers as may be necessary to prove the amounts paid and, before ordering materials, shall submit to the Engineer quotations for the same for his approval.

In respect of such of the Works executed on a daywork basis, the Contractor shall, during the continuance of such work, deliver each day to the Engineer an exact list in duplicate of the names, occupation and time of all workmen employed on such work and a statement, also in duplicate, showing the description and quantity of all materials and Contractor's Equipment used thereon or therefor other than Contractor's Equipment which is included in the percentage addition in accordance with such daywork schedule. One copy of each list and statement will, if correct, or when agreed, be signed by the Engineer and returned to the Contractor.

At the end of each month the Contractor shall deliver to the Engineer a priced statement of the labour, materials and Contractor's Equipment, except as aforesaid, used and the Contractor shall not be entitled to any payment unless such lists and statements have been fully and punctually rendered. Provided always that if the Engineer considers that for any reason the sending of such lists or statements by the Contractor, in accordance with the foregoing provision, was impracticable he shall nevertheless be entitled to authorise payment for such work, either as daywork, on being satisfied as to the time employed and the labour, materials and Contractor's Equipment used on such work, or at such value therefor as shall, in his opinion, be fair and reasonable.

Procedure for Claims

Notice of Claims 53.1 Notwithstanding any other provision of the Contract, if the Contractor intends to claim any additional payment pursuant to any Clause of these Conditions or otherwise, he shall give notice of his intention to the Engineer, with a copy to the Employer, within 28 days after the event giving rise to the claim has first arisen.

Contemporary Records 53.2 Upon the happening of the event referred to in Sub-Clause 53.1, the Contractor shall keep such contemporary records as may reasonably be necessary to support any claim he may subsequently wish to make. Without necessarily admitting the Employer's liability, the Engineer shall, on receipt of a notice under Sub-Clause 53.1, inspect such contemporary records and may instruct the Contractor to keep

any further contemporary records as are reasonable and may be material to the claim of which notice has been given. The Contractor shall permit the Engineer to inspect all records kept pursuant to this Sub-Clause and shall supply him with copies thereof as and when the Engineer so instructs.

Substantiation of Claims	53.3	Within 28 days, or such other reasonable time as may be agreed by the Engineer, of giving notice under Sub-Clause 53.1, the Contractor shall send to the Engineer an account giving detailed particulars of the amount claimed and the grounds upon which the claim is based. Where the event giving rise to the claim has a continuing effect, such account shall be considered to be an interim account and the Contractor shall, at such intervals as the Engineer may reasonably require, send further interim accounts giving the accumulated amount of the claim and any further grounds upon which it is based. In cases where interim accounts are sent to the Engineer, the Contractor shall send a final account within 28 days of the end of the effects resulting from the event. The Contractor shall, if required by the Engineer so to do, copy to the Employer all accounts sent to the Engineer pursuant to this Sub-Clause.
Failure to Comply	53.4	If the Contractor fails to comply with any of the provisions of this Clause in respect of any claim which he seeks to make, his entitlement to payment in respect thereof shall not exceed such amount as the Engineer or any arbitrator or arbitrators appointed pursuant to Sub-Clause 67.3 assessing the claim considers to be verified by contemporary records (whether or not such records were brought to the Engineer's notice as required under Sub-Clauses 53.2 and 53.3).
Payment of Claims	53.5	The Contractor shall be entitled to have included in any interim payment certified by the Engineer pursuant to Clause 60 such amount in respect of any claim as the Engineer, after due consultation with the Employer and the Contractor, may consider due to the Contractor provided that the Contractor has supplied sufficient particulars to enable the Engineer to determine the amount due. If such particulars are insufficient to substantiate the whole of the claim, the Contractor shall be entitled to payment in respect of such part of the claim as such particulars may substantiate to the satisfaction of the Engineer. The Engineer shall notify the Contractor of any determination made under this Sub-Clause, with a copy to the Employer.

Contractor's Equipment, Temporary Works and Materials

Contractor's Equipment, Temporary Works and Materials; Exclusive Use for the Works	54.1	All Contractor's Equipment, Temporary Works and materials provided by the Contractor shall, when brought on to the Site, be deemed to be exclusively intended for the execution of the Works and the Contractor shall not remove the same or any part thereof, except for the purpose of moving it from one part of the Site to another, without the consent of the Engineer. Provided that consent shall not be required for vehicles engaged in transporting any staff, labour, Contractor's Equipment, Temporary Works, Plant or materials to or from the Site.
Employer not liable for Damage	54.2	The Employer shall not at any time be liable, save as mentioned in Clauses 20 and 65, for the loss of or damage to any of the said Contractor's Equipment, Temporary Works or materials.
Customs Clearance	54.3	The Employer will use his best endeavours in assisting the Contractor, where required, in obtaining clearance through the Customs of Contractor's Equipment, materials and other things required for the Works.
Re-export of Contractor's Equipment	54.4	In respect of any Contractor's Equipment which the Contractor has imported for the purposes of the Works, the Employer will use his best endeavours to assist the Contractor, where required, in procuring any necessary Government consent to the re-export of such Contractor's Equipment by the Contractor upon the removal thereof pursuant to the terms of the Contract.

**Conditions of Hire
of Contractor's
Equipment**

54.5

With a view to securing, in the event of termination under Clause 63, the continued availability, for the purpose of executing the Works, of any hired Contractor's Equipment, the Contractor shall not bring on to the Site any hired Contractor's Equipment unless there is an agreement for the hire thereof (which agreement shall be deemed not to include an agreement for hire purchase) which contains a provision that the owner thereof will, on request in writing made by the Employer within 7 days after the date on which any termination has become effective, and on the Employer undertaking to pay all hire charges in respect thereof from such date, hire such Contractor's Equipment to the Employer on the same terms in all respects as the same was hired to the Contractor save that the Employer shall be entitled to permit the use thereof by any other contractor employed by him for the purpose of executing and completing the Works and remedying any defects therein, under the terms of the said Clause 63.

**Costs for the
Purpose of
Clause 63**

54.6

In the event of the Employer entering into any agreement for the hire of Contractor's Equipment pursuant to Sub-Clause 54.5, all sums properly paid by the Employer under the provisions of any such agreement and all costs incurred by him (including stamp duties) in entering into such agreement shall be deemed, for the purpose of Clause 63, to be part of the cost of executing and completing the Works and the remedying of any defects therein.

**Incorporation of
Clause in
Subcontracts**

54.7

The Contractor shall, where entering into any subcontract for the execution of any part of the Works, incorporate in such subcontract (by reference or otherwise) the provisions of this Clause in relation to Contractor's Equipment, Temporary Works or materials brought on to the Site by the Subcontractor.

**Approval of
Materials
not Implied**

54.8

The operation of this Clause shall not be deemed to imply any approval by the Engineer of the materials or other matters referred to therein nor shall it prevent the rejection of any such materials at any time by the Engineer.

Measurement

Quantities

55.1

The quantities set out in the Bill of Quantities are the estimated quantities for the Works, and they are not to be taken as the actual and correct quantities of the Works to be executed by the Contractor in fulfilment of his obligations under the Contract.

**Works to be
Measured**

56.1

The Engineer shall, except as otherwise stated, ascertain and determine by measurement the value of the Works in accordance with the Contract and the Contractor shall be paid that value in accordance with Clause 60. The Engineer shall, when he requires any part of the Works to be measured, give reasonable notice to the Contractor's authorised agent, who shall:

(a) forthwith attend or send a qualified representative to assist the Engineer in making such measurement, and

(b) supply all particulars required by the Engineer.

Should the Contractor not attend, or neglect or omit to send such representative, then the measurement made by the Engineer or approved by him shall be taken to be the correct measurement of such part of the Works. For the purpose of measuring such Permanent Works as are to be measured by records and drawings, the Engineer shall prepare records and drawings as the work proceeds and the Contractor, as and when called upon to do so in writing, shall, within 14 days, attend to examine and agree such records and drawings with the Engineer and shall sign the same when so agreed. If the Contractor does not attend to examine and agree such records and drawings, they shall be taken to be correct. If, after examination of such records and drawings, the Contractor does not agree the same or does not sign the same as agreed, they shall nevertheless be taken to be correct, unless the Contractor, within 14 days of such examination, lodges with the Engineer notice of the respects in which such records and drawings are claimed by him to be incorrect. On receipt of such notice, the Engineer shall review the records and drawings and either confirm or vary them.

Method of Measurement	57.1	The Works shall be measured net, notwithstanding any general or local custom, except where otherwise provided for in the Contract.
Breakdown of Lump Sum Items	57.2	For the purposes of statements submitted in accordance with Sub-Clause 60.1, the Contractor shall submit to the Engineer, within 28 days after the receipt of the Letter of Acceptance, a breakdown for each of the lump sum items contained in the Tender. Such breakdowns shall be subject to the approval of the Engineer.

Provisional Sums

Definition of "Provisional Sum"	58.1	"Provisional Sum" means a sum included in the Contract and so designated in the Bill of Quantities for the execution of any part of the Works or for the supply of goods, materials, Plant or services, or for contingencies, which sum may be used, in whole or in part, or not at all, on the instructions of the Engineer. The Contractor shall be entitled to only such amounts in respect of the work, supply or contingencies to which such Provisional Sums relate as the Engineer shall determine in accordance with this Clause. The Engineer shall notify the Contractor of any determination made under this Sub-Clause, with a copy to the Employer.
Use of Provisional Sums	58.2	In respect of every Provisional Sum the Engineer shall have authority to issue instructions for the execution of work or for the supply of goods, materials, Plant or services by: (a) the Contractor, in which case the Contractor shall be entitled to an amount equal to the value thereof determined in accordance with Clause 52, (b) a nominated Subcontractor, as hereinafter defined, in which case the sum to be paid to the Contractor therefor shall be determined and paid in accordance with Sub-Clause 59.4.
Production of Vouchers	58.3	The Contractor shall produce to the Engineer all quotations, invoices, vouchers and accounts or receipts in connection with expenditure in respect of Provisional Sums, except where work is valued in accordance with rates or prices set out in the Tender.

Nominated Subcontractors

Definition of "Nominated Subcontractors"	59.1	All specialists, merchants, tradesmen and others executing any work or supplying any goods, materials, Plant or services for which Provisional Sums are included in the Contract, who may have been or be nominated or selected or approved by the Employer or the Engineer, and all persons to whom by virtue of the provisions of the Contract the Contractor is required to subcontract shall, in the execution of such work or the supply of such goods, materials, Plant or services, be deemed to be subcontractors to the Contractor and are referred to in this Contract as "nominated Subcontractors".
Nominated Subcontractors; Objection to Nomination	59.2	The Contractor shall not be required by the Employer or the Engineer, or be deemed to be under any obligation, to employ any nominated Subcontractor against whom the Contractor may raise reasonable objection, or who declines to enter into a subcontract with the Contractor containing provisions: (a) that in respect of the work, goods, materials, Plant or services the subject of the subcontract, the nominated Subcontractor will undertake towards the Contractor such obligations and liabilities as will enable the Contractor to discharge his own obligations and liabilities towards the Employer under the terms of the Contract and will save harmless and indemnify the Contractor from and against the same and from all claims, proceedings, damages, costs, charges and expenses whatsoever arising out of or in connection therewith, or arising out of or in connection with any failure to perform such obligations or to fulfil such liabilities, and

(b) that the nominated Subcontractor will save harmless and indemnify the Contractor from and against any negligence by the nominated Subcontractor, his agents, workmen and servants and from and against any misuse by him or them of any Temporary Works provided by the Contractor for the purposes of the Contract and from all claims as aforesaid.

**Design
Requirements
to be Expressly
Stated**

59.3 If in connection with any Provisional Sum the services to be provided include any matter of design or specification of any part of the Permanent Works or of any Plant to be incorporated therein, such requirement shall be expressly stated in the Contract and shall be included in any nominated Subcontract. The nominated Subcontract shall specify that the nominated Subcontractor providing such services will save harmless and indemnify the Contractor from and against the same and from all claims, proceedings, damages, costs, charges and expenses whatsoever arising out of or in connection with any failure to perform such obligations or to fulfil such liabilities.

**Payments to
Nominated
Subcontractors**

59.4 For all work executed or goods, materials, Plant or services supplied by any nominated Subcontractor, the Contractor shall be entitled to:

(a) the actual price paid or due to be paid by the Contractor, on the instructions of the Engineer, and in accordance with the subcontract;

(b) in respect of labour supplied by the Contractor, the sum, if any, entered in the Bill of Quantities or, if instructed by the Engineer pursuant to paragraph (a) of Sub-Clause 58.2, as may be determined in accordance with Clause 52;

(c) in respect of all other charges and profit, a sum being a percentage rate of the actual price paid or due to be paid calculated, where provision has been made in the Bill of Quantities for a rate to be set against the relevant Provisional Sum, at the rate inserted by the Contractor against that item or, where no such provision has been made, at the rate inserted by the Contractor in the Appendix to Tender and repeated where provision for such is made in a special item provided in the Bill of Quantities for such purpose.

**Certification of
Payments to
Nominated
Subcontractors**

59.5 Before issuing, under Clause 60, any certificate, which includes any payment in respect of work done or goods, materials, Plant or services supplied by any nominated Subcontractor, the Engineer shall be entitled to demand from the Contractor reasonable proof that all payments, less retentions, included in previous certificates in respect of the work or goods, materials, Plant or services of such nominated Subcontractor have been paid or discharged by the Contractor. If the Contractor fails to supply such proof then, unless the Contractor

(a) satisfies the Engineer in writing that he has reasonable cause for withholding or refusing to make such payments and

(b) produces to the Engineer reasonable proof that he has so informed such nominated Subcontractor in writing,

the Employer shall be entitled to pay to such nominated Subcontractor direct, upon the certificate of the Engineer, all payments, less retentions, provided for in the nominated Subcontract, which the Contractor has failed to make to such nominated Subcontractor and to deduct by way of set-off the amount so paid by the Employer from any sums due or to become due from the Employer to the Contractor.

Provided that, where the Engineer has certified and the Employer has paid direct as aforesaid, the Engineer shall, in issuing any further certificate in favour of the Contractor, deduct from the amount thereof the amount so paid, direct as aforesaid, but shall not withhold or delay the issue of the certificate itself when due to be issued under the terms of the Contract.

Certificates and Payment

Monthly Statements

60.1 The Contractor shall submit to the Engineer after the end of each month six copies, each signed by the Contractor's representative approved by the Engineer in accordance with Sub-Clause 15.1, of a statement, in such form as the Engineer may from time to time prescribe, showing the amounts to which the Contractor considers himself to be entitled up to the end of the month in respect of

(a) the value of the Permanent Works executed

(b) any other items in the Bill of Quantities including those for Contractor's Equipment, Temporary Works, dayworks and the like

(c) the percentage of the invoice value of listed materials, all as stated in the Appendix to Tender, and Plant delivered by the Contractor on the Site for incorporation in the Permanent Works but not incorporated in such Works

(d) adjustments under Clause 70

(e) any other sum to which the Contractor may be entitled under the Contract.

Monthly Payments

60.2 The Engineer shall, within 28 days of receiving such statement, certify to the Employer the amount of payment to the Contractor which he considers due and payable in respect thereof, subject:

(a) firstly, to the retention of the amount calculated by applying the Percentage of Retention stated in the Appendix to Tender, to the amount to which the Contractor is entitled under paragraphs (a), (b), (c) and (e) of Sub-Clause 60.1 until the amount so retained reaches the Limit of Retention Money stated in the Appendix to Tender, and

(b) secondly, to the deduction, other than pursuant to Clause 47, of any sums which may have become due and payable by the Contractor to the Employer.

Provided that the Engineer shall not be bound to certify any payment under this Sub-Clause if the net amount thereof, after all retentions and deductions, would be less than the Minimum Amount of Interim Certificates stated in the Appendix to Tender.

Notwithstanding the terms of this Clause or any other Clause of the Contract no amount will be certified by the Engineer for payment until the performance security, if required under the Contract, has been provided by the Contractor and approved by the Employer.

Payment of Retention Money

60.3 (a) Upon the issue of the Taking-Over Certificate with respect to the whole of the Works, one half of the Retention Money, or upon the issue of a Taking-Over Certificate with respect to a Section or part of the Permanent Works only such proportion thereof as the Engineer determines having regard to the relative value of such Section or part of the Permanent Works, shall be certified by the Engineer for payment to the Contractor.

(b) Upon the expiration of the Defects Liability Period for the Works the other half of the Retention Money shall be certified by the Engineer for payment to the Contractor. Provided that, in the event of different Defects Liability Periods having become applicable to different Sections or parts of the Permanent Works pursuant to Clause 48, the expression "expiration of the Defects Liability Period" shall, for the purposes of this Sub-Clause, be deemed to mean the expiration of the latest of such periods. Provided also that if at such time, there shall remain to be executed by the Contractor any work ordered, pursuant to Clauses 49 and 50, in respect of the Works, the Engineer shall be entitled to withhold certification until completion of such work of so much of the balance of the Retention Money as shall, in the opinion of the Engineer, represent the cost of the work remaining to be executed.

Correction of Certificates	60.4	The Engineer may by any interim certificate make any correction or modification in any previous certificate which shall have been issued by him and shall have authority, if any work is not being carried out to his satisfaction, to omit or reduce the value of such work in any interim certificate.
Statement at Completion	60.5	Not later than 84 days after the issue of the Taking-Over Certificate in respect of the whole of the Works, the Contractor shall submit to the Engineer a Statement at Completion with supporting documents showing in detail, in the form approved by the Engineer, (a) the final value of all work done in accordance with the Contract up to the date stated in such Taking-Over Certificate (b) any further sums which the Contractor considers to be due and (c) an estimate of amounts which the Contractor considers will become due to him under the Contract. The estimated amounts shall be shown separately in such Statement at Completion. The Engineer shall certify payment in accordance with Sub-Clause 60.2.
Final Statement	60.6	Not later than 56 days after the issue of the Defects Liability Certificate pursuant to Sub-Clause 62.1, the Contractor shall submit to the Engineer for consideration a draft final statement with supporting documents showing in detail, in the form approved by the Engineer, (a) the value of all work done in accordance with the Contract and (b) any further sums which the Contractor considers to be due to him under the Contract. If the Engineer disagrees with or cannot verify any part of the draft final statement, the Contractor shall submit such further information as the Engineer may reasonably require and shall make such changes in the draft as may be agreed between them. The Contractor shall then prepare and submit to the Engineer the final statement as agreed (for the purposes of these Conditions referred to as the "Final Statement").
Discharge	60.7	Upon submission of the Final Statement, the Contractor shall give to the Employer, with a copy to the Engineer, a written discharge confirming that the total of the Final Statement represents full and final settlement of all monies due to the Contractor arising out of or in respect of the Contract. Provided that such discharge shall become effective only after payment due under the Final Certificate issued pursuant to Sub-Clause 60.8 has been made and the performance security referred to in Sub-Clause 10.1, if any, has been returned to the Contractor.
Final Certificate	60.8	Within 28 days after receipt of the Final Statement, and the written discharge, the Engineer shall issue to the Employer (with a copy to the Contractor) a Final Certificate stating (a) the amount which, in the opinion of the Engineer, is finally due under the Contract, and (b) after giving credit to the Employer for all amounts previously paid by the Employer and for all sums to which the Employer is entitled under the Contract, other than Clause 47, the balance, if any, due from the Employer to the Contractor or from the Contractor to the Employer as the case may be.
Cessation of Employer's Liability	60.9	The Employer shall not be liable to the Contractor for any matter or thing arising out of or in connection with the Contract or execution of the Works, unless the Contractor shall have included a claim in respect thereof in his Final Statement and (except in respect of matters or things arising after the issue of the Taking-Over Certificate in respect of the whole of the Works) in the Statement at Completion referred to in Sub-Clause 60.5.

Time for Payment	60.10	The amount due to the Contractor under any interim certificate issued by the Engineer pursuant to this Clause, or to any other term of the Contract, shall, subject to Clause 47, be paid by the Employer to the Contractor within 28 days after such interim certificate has been delivered to the Employer, or, in the case of the Final Certificate referred to in Sub-Clause 60.8, within 56 days, after such Final Certificate has been delivered to the Employer. In the event of the failure of the Employer to make payment within the times stated, the Employer shall pay to the Contractor interest at the rate stated in the Appendix to Tender upon all sums unpaid from the date by which the same should have been paid. The provisions of this Sub-Clause are without prejudice to the Contractor's entitlement under Clause 69.
Approval only by Defects Liability Certificate	61.1	Only the Defects Liability Certificate, referred to in Clause 62, shall be deemed to constitute approval of the Works.
Defects Liability Certificate	62.1	The Contract shall not be considered as completed until a Defects Liability Certificate shall have been signed by the Engineer and delivered to the Employer, with a copy to the Contractor, stating the date on which the Contractor shall have completed his obligations to execute and complete the Works and remedy any defects therein to the Engineer's satisfaction. The Defects Liability Certificate shall be given by the Engineer within 28 days after the expiration of the Defects Liability Period, or, if different defects liability periods shall become applicable to different Sections or parts of the Permanent Works, the expiration of the latest such period, or as soon thereafter as any works instructed, pursuant to Clauses 49 and 50, have been completed to the satisfaction of the Engineer. Provided that the issue of the Defects Liability Certificate shall not be a condition precedent to payment to the Contractor of the second portion of the Retention Money in accordance with the conditions set out in Sub-Clause 60.3.
Unfulfilled Obligations	62.2	Notwithstanding the issue of the Defects Liability Certificate the Contractor and the Employer shall remain liable for the fulfilment of any obligation incurred under the provisions of the Contract prior to the issue of the Defects Liability Certificate which remains unperformed at the time such Defects Liability Certificate is issued and, for the purposes of determining the nature and extent of any such obligation, the Contract shall be deemed to remain in force between the parties to the Contract.

Remedies

Default of Contractor	63.1	If the Contractor is deemed by law unable to pay his debts as they fall due, or enters into voluntary or involuntary bankruptcy, liquidation or dissolution (other than a voluntary liquidation for the purposes of amalgamation or reconstruction), or becomes insolvent, or makes an arrangement with, or assignment in favour of, his creditors, or agrees to carry out the Contract under a committee of inspection of his creditors, or if a receiver, administrator, trustee or liquidator is appointed over any substantial part of his assets, or if, under any law or regulation relating to reorganization, arrangement or readjustment of debts, proceedings are commenced against the Contractor or resolutions passed in connection with dissolution or liquidation or if any steps are taken to enforce any security interest over a substantial part of the assets of the Contractor, or if any act is done or event occurs with respect to the Contractor or his assets which, under any applicable law has a substantially similar effect to any of the foregoing acts or events, or if the Contractor has contravened Sub-Clause 3.1, or has an execution levied on his goods, or if the Engineer certifies to the Employer, with a copy to the Contractor, that, in his opinion, the Contractor: (a) has repudiated the Contract, or (b) without reasonable excuse has failed (i) to commence the Works in accordance with Sub-Clause 41.1, or
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(ii) to proceed with the Works, or any Section thereof, within 28 days after receiving notice pursuant to Sub-Clause 46.1, or

(c) has failed to comply with a notice issued pursuant to Sub-Clause 37.4 or an instruction issued pursuant to Sub-Clause 39.1 within 28 days after having received it, or

(d) despite previous warning from the Engineer, in writing, is otherwise persistently or flagrantly neglecting to comply with any of his obligations under the Contract, or

(e) has contravened Sub-Clause 4.1,

then the Employer may, after giving 14 days' notice to the Contractor, enter upon the Site and the Works and terminate the employment of the Contractor without thereby releasing the Contractor from any of his obligations or liabilities under the Contract, or affecting the rights and authorities conferred on the Employer or the Engineer by the Contract, and may himself complete the Works or may employ any other contractor to complete the Works. The Employer or such other contractor may use for such completion so much of the Contractor's Equipment, Temporary Works and materials as he or they may think proper.

**Valuation at Date
of Termination**

63.2 The Engineer shall, as soon as may be practicable after any such entry and termination by the Employer, fix and determine ex parte, or by or after reference to the parties or after such investigation or enquiries as he may think fit to make or institute, and shall certify:

(a) what amount (if any) had, at the time of such entry and termination, been reasonably earned by or would reasonably accrue to the Contractor in respect of work then actually done by him under the Contract, and

(b) the value of any of the said unused or partially used materials, any Contractor's Equipment and any Temporary Works.

**Payment after
Termination**

63.3 If the Employer terminates the Contractor's employment under this Clause, he shall not be liable to pay to the Contractor any further amount (including damages) in respect of the Contract until the expiration of the Defects Liability Period and thereafter until the costs of execution, completion and remedying of any defects, damages for delay in completion (if any) and all other expenses incurred by the Employer have been ascertained and the amount thereof certified by the Engineer. The Contractor shall then be entitled to receive only such sum (if any) as the Engineer may certify would have been payable to him upon due completion by him after deducting the said amount. If such amount exceeds the sum which would have been payable to the Contractor on due completion by him, then the Contractor shall, upon demand, pay to the Employer the amount of such excess and it shall be deemed a debt due by the Contractor to the Employer and shall be recoverable accordingly.

**Assignment of
Benefit of
Agreement**

63.4 Unless prohibited by law, the Contractor shall, if so instructed by the Engineer within 14 days of such entry and termination referred to in Sub-Clause 63.1, assign to the Employer the benefit of any agreement for the supply of any goods or materials or services and/or for the execution of any work for the purposes of the Contract, which the Contractor may have entered into.

Urgent Remedial Work	64.1	If, by reason of any accident, or failure, or other event occurring to, in, or in connection with the Works, or any part thereof, either during the execution of the Works, or during the Defects Liability Period, any remedial or other work is, in the opinion of the Engineer, urgently necessary for the safety of the Works and the Contractor is unable or unwilling at once to do such work, the Employer shall be entitled to employ and pay other persons to carry out such work as the Engineer may consider necessary. If the work or repair so done by the Employer is work which, in the opinion of the Engineer, the Contractor was liable to do at his own cost under the Contract, then all costs consequent thereon or incidental thereto shall, after due consultation with the Employer and the Contractor, be determined by the Engineer and shall be recoverable from the Contractor by the Employer, and may be deducted by the Employer from any monies due or to become due to the Contractor and the Engineer shall notify the Contractor accordingly, with a copy to the Employer. Provided that the Engineer shall, as soon after the occurrence of any such emergency as may be reasonably practicable, notify the Contractor thereof.
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Special Risks

No Liability for Special Risks	65.1	The Contractor shall be under no liability whatsoever in consequence of any of the special risks referred to in Sub-Clause 65.2, whether by way of indemnity or otherwise, for or in respect of: (a) destruction of or damage to the Works, save to work condemned under the provisions of Clause 39 prior to the occurrence of any of the said special risks, or (b) destruction of or damage to property, whether of the Employer or third parties, or (c) injury or loss of life.
Special Risks	65.2	The special risks are: (a) the risks defined under paragraphs (a), (c), (d) and (e) of Sub-Clause 20.4, and (b) the risks defined under paragraph (b) of Sub-Clause 20.4 insofar as these relate to the country in which the Works are to be executed.
Damage to Works by Special Risks	65.3	If the Works or any materials or Plant on or near or in transit to the Site, or any of the Contractor's Equipment, sustain destruction or damage by reason of any of the said special risks, the Contractor shall be entitled to payment in accordance with the Contract for any Permanent Works duly executed and for any materials or Plant so destroyed or damaged and, so far as may be required by the Engineer or as may be necessary for the completion of the Works, to payment for: (a) rectifying any such destruction or damage to the Works, and (b) replacing or rectifying such materials or Contractor's Equipment and the Engineer shall determine an addition to the Contract Price in accordance with Clause 52 (which shall in the case of the cost of replacement of Contractor's Equipment include the fair market value thereof as determined by the Engineer) and shall notify the Contractor accordingly, with a copy to the Employer.
Projectile, Missile	65.4	Destruction, damage, injury or loss of life caused by the explosion or impact, whenever and wherever occurring, of any mine, bomb, shell, grenade, or other projectile, missile, munition, or explosive of war, shall be deemed to be a consequence of the said special risks.

Increased Costs arising from Special Risks	65.5	Save to the extent that the Contractor is entitled to payment under any other provision of the Contract, the Employer shall repay to the Contractor any costs of the execution of the Works (other than such as may be attributable to the cost of reconstructing work condemned under the provisions of Clause 39 prior to the occurrence of any special risk) which are howsoever attributable to or consequent on or the result of or in any way whatsoever connected with the said special risks, subject however to the provisions in this Clause hereinafter contained in regard to outbreak of war, but the Contractor shall, as soon as any such cost comes to his knowledge, forthwith notify the Engineer thereof. The Engineer shall, after due consultation with the Employer and the Contractor, determine the amount of the Contractor's costs in respect thereof which shall be added to the Contract Price and shall notify the Contractor accordingly, with a copy to the Employer.
Outbreak of War	65.6	If, during the currency of the Contract, there is an outbreak of war, whether war is declared or not, in any part of the world which, whether financially or otherwise, materially affects the execution of the Works, the Contractor shall, unless and until the Contract is terminated under the provisions of this Clause, continue to use his best endeavours to complete the execution of the Works. Provided that the Employer shall be entitled, at any time after such outbreak of war, to terminate the Contract by giving notice to the Contractor and, upon such notice being given, the Contract shall, except as to the rights of the parties under this Clause and to the operation of Clause 67, terminate, but without prejudice to the rights of either party in respect of any antecedent breach thereof.
Removal of Contractor's Equipment on Termination	65.7	If the Contract is terminated under the provisions of Sub-Clause 65.6, the Contractor shall, with all reasonable dispatch, remove from the Site all Contractor's Equipment and shall give similar facilities to his Subcontractors to do so.
Payment if Contract Terminated	65.8	If the Contract is terminated as aforesaid, the Contractor shall be paid by the Employer, insofar as such amounts or items have not already been covered by payments on account made to the Contractor, for all work executed prior to the date of termination at the rates and prices provided in the Contract and in addition: (a) The amounts payable in respect of any preliminary items referred to in the Bill of Quantities, so far as the work or service comprised therein has been carried out or performed, and a proper proportion of any such items which have been partially carried out or performed. (b) The cost of materials, Plant or goods reasonably ordered for the Works which have been delivered to the Contractor or of which the Contractor is legally liable to accept delivery, such materials, Plant or goods becoming the property of the Employer upon such payments being made by him. (c) A sum being the amount of any expenditure reasonably incurred by the Contractor in the expectation of completing the whole of the Works insofar as such expenditure has not been covered by any other payments referred to in this Sub-Clause. (d) Any additional sum payable under the provisions of Sub-Clauses 65.3 and 65.5. (e) Such proportion of the cost as may be reasonable, taking into account payments made or to be made for work executed, of removal of Contractor's Equipment under Sub-Clause 65.7 and, if required by the Contractor, return thereof to the Contractor's main plant yard in his country of registration or to other destination, at no greater cost. (f) The reasonable cost of repatriation of all the Contractor's staff and workmen employed on or in connection with the Works at the time of such termination

Provided that against any payment due from the Employer under this Sub-Clause, the Employer shall be entitled to be credited with any outstanding balances due from the Contractor for advances in respect of Contractor's Equipment, materials and Plant and any other sums which, at the date of termination, were recoverable by the Employer from the Contractor under the terms of the Contract. Any sums payable under this Sub-Clause shall, after due consultation with the Employer and the Contractor, be determined by the Engineer who shall notify the Contractor accordingly, with a copy to the Employer.

Release from Performance

Payment in Event of Release from Performance

- 66.1 If any circumstance outside the control of both parties arises after the issue of the Letter of Acceptance which renders it impossible or unlawful for either party to fulfil his contractual obligations, or under the law governing the Contract the parties are released from further performance, then the sum payable by the Employer to the Contractor in respect of the work executed shall be the same as that which would have been payable under Clause 65 if the Contract had been terminated under the provisions of Clause 65.

Settlement of Disputes

Engineer's Decision

- 67.1 If a dispute of any kind whatsoever arises between the Employer and the Contractor in connection with, or arising out of, the Contract or the execution of the Works, whether during the execution of the Works or after their completion and whether before or after repudiation or other termination of the Contract, including any dispute as to any opinion, instruction, determination, certificate or valuation of the Engineer, the matter in dispute shall, in the first place, be referred in writing to the Engineer, with a copy to the other party. Such reference shall state that it is made pursuant to this Clause. No later than the eighty-fourth day after the day on which he received such reference the Engineer shall give notice of his decision to the Employer and the Contractor. Such decision shall state that it is made pursuant to this Clause.

Unless the Contract has already been repudiated or terminated, the Contractor shall, in every case, continue to proceed with the Works with all due diligence and the Contractor and the Employer shall give effect forthwith to every such decision of the Engineer unless and until the same shall be revised, as hereinafter provided, in an amicable settlement or an arbitral award.

If either the Employer or the Contractor be dissatisfied with any decision of the Engineer, or if the Engineer fails to give notice of his decision on or before the eighty-fourth day after the day on which he received the reference, then either the Employer or the Contractor may, on or before the seventieth day after the day on which he received notice of such decision, or on or before the seventieth day after the day on which the said period of 84 days expired, as the case may be, give notice to the other party, with a copy for information to the Engineer, of his intention to commence arbitration, as hereinafter provided, as to the matter in dispute. Such notice shall establish the entitlement of the party giving the same to commence arbitration, as hereinafter provided, as to such dispute and, subject to Sub-Clause 67.4, no arbitration in respect thereof may be commenced unless such notice is given.

If the Engineer has given notice of his decision as to a matter in dispute to the Employer and the Contractor and no notice of intention to commence arbitration as to such dispute has been given by either the Employer or the Contractor on or before the seventieth day after the day on which the parties received notice as to such decision from the Engineer, the said decision shall become final and binding upon the Employer and the Contractor.

Amicable Settlement	67.2	Where notice of intention to commence arbitration as to a dispute has been given in accordance with Sub-Clause 67.1, arbitration of such dispute shall not be commenced unless an attempt has first been made by the parties to settle such dispute amicably. Provided that, unless the parties otherwise agree, arbitration may be commenced on or after the fifty-sixth day after the day on which notice of intention to commence arbitration of such dispute was given, whether or not any attempt at amicable settlement thereof has been made.
Arbitration	67.3	Any dispute in respect of which: (a) the decision, if any, of the Engineer has not become final and binding pursuant to Sub-Clause 67.1, and (b) amicable settlement has not been reached within the period stated in Sub-Clause 67.2 shall be finally settled, unless otherwise specified in the Contract, under the Rules of Conciliation and Arbitration of the International Chamber of Commerce by one or more arbitrators appointed under such Rules. The said arbitrator/s shall have full power to open up, review and revise any decision, opinion, instruction, determination, certificate or valuation of the Engineer related to the dispute. Neither party shall be limited in the proceedings before such arbitrator/s to the evidence or arguments put before the Engineer for the purpose of obtaining his said decision pursuant to Sub-Clause 67.1. No such decision shall disqualify the Engineer from being called as a witness and giving evidence before the arbitrator/s on any matter whatsoever relevant to the dispute. Arbitration may be commenced prior to or after completion of the Works, provided that the obligations of the Employer, the Engineer and the Contractor shall not be altered by reason of the arbitration being conducted during the progress of the Works.
Failure to Comply with Engineer's Decision	67.4	Where neither the Employer nor the Contractor has given notice of intention to commence arbitration of a dispute within the period stated in Sub-Clause 67.1 and the related decision has become final and binding, either party may, if the other party fails to comply with such decision, and without prejudice to any other rights it may have, refer the failure to arbitration in accordance with Sub-Clause 67.3. The provisions of Sub-Clauses 67.1 and 67.2 shall not apply to any such reference.

Notices

Notice to Contractor	68.1	All certificates, notices or instructions to be given to the Contractor by the Employer or the Engineer under the terms of the Contract shall be sent by post, cable, telex or facsimile transmission to or left at the Contractor's principal place of business or such other address as the Contractor shall nominate for that purpose.
Notice to Employer and Engineer	68.2	Any notice to be given to the Employer or to the Engineer under the terms of the Contract shall be sent by post, cable, telex or facsimile transmission to or left at the respective addresses nominated for that purpose in Part II of these Conditions.
Change of Address	68.3	Either party may change a nominated address to another address in the country where the Works are being executed by prior notice to the other party, with a copy to the Engineer, and the Engineer may do so by prior notice to both parties.

Default of Employer

- Default of Employer** **69.1** In the event of the Employer:
- (a) failing to pay to the Contractor the amount due under any certificate of the Engineer within 28 days after the expiry of the time stated in Sub-Clause 60.10 within which payment is to be made, subject to any deduction that the Employer is entitled to make under the Contract, or
 - (b) interfering with or obstructing or refusing any required approval to the issue of any such certificate, or
 - (c) becoming bankrupt or, being a company, going into liquidation, other than for the purpose of a scheme of reconstruction or amalgamation, or
 - (d) giving notice to the Contractor that for unforeseen reasons, due to economic dislocation, it is impossible for him to continue to meet his contractual obligations
- the Contractor shall be entitled to terminate his employment under the Contract by giving notice to the Employer, with a copy to the Engineer. Such termination shall take effect 14 days after the giving of the notice.
- Removal of Contractor's Equipment** **69.2** Upon the expiry of the 14 days' notice referred to in Sub-Clause 69.1, the Contractor shall, notwithstanding the provisions of Sub-Clause 54.1, with all reasonable despatch, remove from the Site all Contractor's Equipment brought by him thereon.
- Payment on Termination** **69.3** In the event of such termination the Employer shall be under the same obligations to the Contractor in regard to payment as if the Contract had been terminated under the provisions of Clause 65, but, in addition to the payments specified in Sub-Clause 65.8, the Employer shall pay to the Contractor the amount of any loss or damage to the Contractor arising out of or in connection with or by consequence of such termination.
- Contractor's Entitlement to Suspend Work** **69.4** Without prejudice to the Contractor's entitlement to interest under Sub-Clause 60.10 and to terminate under Sub-Clause 69.1, the Contractor may, if the Employer fails to pay the Contractor the amount due under any certificate of the Engineer within 28 days after the expiry of the time stated in Sub-Clause 60.10 within which payment is to be made, subject to any deduction that the Employer is entitled to make under the Contract, after giving 28 days' prior notice to the Employer, with a copy to the Engineer, suspend work or reduce the rate of work.
- If the Contractor suspends work or reduces the rate of work in accordance with the provisions of this Sub-Clause and thereby suffers delay or incurs cost the Engineer shall, after due consultation with the Employer and the Contractor, determine
- (a) any extension of time to which the Contractor is entitled under Clause 44, and
 - (b) the amount of such costs, which shall be added to the Contract Price,
- and shall notify the Contractor accordingly, with a copy to the Employer.
- Resumption of Work** **69.5** Where the Contractor suspends work or reduces the rate of work, having given notice in accordance with Sub-Clause 69.4, and the Employer subsequently pays the amount due, including interest pursuant to Sub-Clause 60.10, the Contractor's entitlement under Sub-Clause 69.1 shall, if notice of termination has not been given, lapse and the Contractor shall resume normal working as soon as is reasonably possible.

Changes in Cost and Legislation

- Increase or Decrease of Cost** **70.1** There shall be added to or deducted from the Contract Price such sums in respect of rise or fall in the cost of labour and/or materials or any other matters affecting the cost of the execution of the Works as may be determined in accordance with Part II of these Conditions.

- Subsequent Legislation** **70.2** If, after the date 28 days prior to the latest date for submission of tenders for the Contract there occur in the country in which the Works are being or are to be executed changes to any National or State Statute, Ordinance, Decree or other Law or any regulation or bye-law of any local or other duly constituted authority, or the introduction of any such State Statute, Ordinance, Decree, Law, regulation or bye-law which causes additional or reduced cost to the Contractor, other than under Sub-Clause 70.1, in the execution of the Contract, such additional or reduced cost shall, after due consultation with the Employer and the Contractor, be determined by the Engineer and shall be added to or deducted from the Contract Price and the Engineer shall notify the Contractor accordingly, with a copy to the Employer.

Currency and Rates of Exchange

- Currency Restrictions** **71.1** If, after the date 28 days prior to the latest date for submission of tenders for the Contract, the Government or authorised agency of the Government of the country in which the Works are being or are to be executed imposes currency restrictions and/or transfer of currency restrictions in relation to the currency or currencies in which the Contract Price is to be paid, the Employer shall reimburse any loss or damage to the Contractor arising therefrom, without prejudice to the right of the Contractor to exercise any other rights or remedies to which he is entitled in such event.
- Rates of Exchange** **72.1** Where the Contract provides for payment in whole or in part to be made to the Contractor in foreign currency or currencies, such payment shall not be subject to variations in the rate or rates of exchange between such specified foreign currency or currencies and the currency of the country in which the Works are to be executed.
- Currency Proportions** **72.2** Where the Employer has required the Tender to be expressed in a single currency but with payment to be made in more than one currency and the Contractor has stated the proportions or amounts of other currency or currencies in which he requires payment to be made, the rate or rates of exchange applicable for calculating the payment of such proportions or amounts shall, unless otherwise stated in Part II of these Conditions, be those prevailing, as determined by the Central Bank of the country in which the Works are to be executed, on the date 28 days prior to the latest date for the submission of tenders for the Contract, as has been notified to the Contractor by the Employer prior to the submission of tenders or as provided for in the Tender.
- Currencies of Payment for Provisional Sums** **72.3** Where the Contract provides for payment in more than one currency, the proportions or amounts to be paid in foreign currencies in respect of Provisional Sums shall be determined in accordance with the principles set forth in Sub-Clauses 72.1 and 72.2 as and when these sums are utilised in whole or in part in accordance with the provisions of Clauses 58 and 59.

REFERENCE TO PART II

As stated in the Foreword at the beginning of this document, the FIDIC Conditions comprise both Part I and Part II. Certain Clauses, namely Sub-Clauses 1.1 paragraph (a) (i) and (iv), 5.1 part 14.1, 14.3, 68.2 and 70.1 must include additional wording in Part II for the Conditions to be complete. Other Clauses may require additional wording to supplement Part I or to cover particular circumstances or the type of work (dredging is an example).

Part II Conditions of Particular Application with guidelines for the preparation of Part II are printed in a separately bound document.

PART I — GENERAL CONDITIONS

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TENDER

NAME OF CONTRACT: * _____

TO: * _____

Gentlemen,

1. Having examined the Conditions of Contract, Specification, Drawings, and Bill of Quantities and Addenda Nos _____ for the execution of the above-named Works, we the undersigned, offer to execute and complete such Works and remedy any defects therein in conformity with the Conditions of Contract, Specification, Drawings, Bill of Quantities and Addenda for the sum of

(_____)

or such other sums as may be ascertained in accordance with the said Conditions.

2. We acknowledge that the Appendix forms part of our Tender.
3. We undertake, if our Tender is accepted, to commence the Works as soon as is reasonably possible after the receipt of the Engineer's notice to commence, and to complete the whole of the Works comprised in the Contract within the time stated in the Appendix to Tender.
4. We agree to abide by this Tender for the period of * _____ days from the date fixed for receiving the same and it shall remain binding upon us and may be accepted at any time before the expiration of that period.
5. Unless and until a formal Agreement is prepared and executed this Tender, together with your written acceptance thereof, shall constitute a binding contract between us.
6. We understand that you are not bound to accept the lowest or any tender you may receive.

Dated this _____ day of _____ 19 _____

Signature _____ in the capacity of _____

duly authorised to sign tenders for and on behalf of _____

(IN BLOCK CAPITALS)

Address _____

Witness _____

Address _____

Occupation _____

(Note: All details marked * shall be inserted before issue of Tender documents.)

Appendix

	Sub-Clause	
Amount of security (if any) _____	10.1	_____ per cent of the Contract Price
Minimum amount of third party insurance	23.2	_____ per occurrence, with the number of occurrences unlimited
Time for issue of notice to commence	41.1	_____ days
Time for Completion _____	43.1	_____ days
Amount of liquidated damages _____	47.1	_____ per day
Limit of liquidated damages _____	47.1	_____
Defects Liability Period _____	49.1	_____ days
Percentage for adjustment of Provisional Sums	59.4(c)	_____ per cent
Percentage of invoice value of listed materials	60.1(c)	_____ per cent
Percentage of Retention _____	60.2	_____ per cent
Limit of Retention Money _____	60.2	_____
Minimum Amount of Interim Certificates ____	60.2	_____
Rate of interest upon unpaid sums _____	60.10	_____ per cent
Initials of Signatory of Tender _____		

(Notes: All details in the list above, other than percentage figure against Sub-Clause 59.4, shall be inserted before issue of Tender documents. Where a number of days is to be inserted, it is desirable, for consistency with the Conditions, that the number should be a multiple of seven.

Additional entries are necessary where provision is included in the Contract for:

- (a) completion of Sections (Sub-Clauses 43.1 and 48.2(a))
- (b) liquidated damages for Sections (Sub-Clause 47.1)
- (c) a bonus (Sub-Clause 47.3 — Part II)
- (d) payment for materials on Site (Sub-Clause 60.1(c))
- (e) payment in foreign currencies (Clause 60 — Part II)
- (f) an advance payment (Clause 60 — Part II)
- (g) adjustments to the Contract Price on account of Specified Materials
(Sub-Clause 70.1 — Part II)
- (h) rates of exchange (Sub-Clause 72.2 — Part II)

Agreement

This Agreement made the _____ day of _____ 19 _____

Between _____

of _____

_____ (hereinafter called "the Employer") of the one part and

_____ of _____

(hereinafter called "the Contractor") of the other part

Whereas the Employer is desirous that certain Works should be executed by the Contractor, viz _____

and has accepted a Tender by the Contractor for the execution and completion of such Works and the remedying of any defects therein

Now this Agreement witnesseth as follows:

1. In this Agreement words and expressions shall have the same meanings as are respectively assigned to them in the Conditions of Contract hereinafter referred to.
2. The following documents shall be deemed to form and be read and construed as part of this Agreement, viz:-
 - (a) The Letter of Acceptance;
 - (b) The said Tender;
 - (c) The Conditions of Contract (Parts I and II);
 - (d) The Specification;
 - (e) The Drawings; and
 - (f) The Bill of Quantities.
3. In consideration of the payments to be made by the Employer to the Contractor as hereinafter mentioned the Contractor hereby covenants with the Employer to execute and complete the Works and remedy any defects therein in conformity in all respects with the provisions of the Contract.
4. The Employer hereby covenants to pay the Contractor in consideration of the execution and completion of the works and the remedying of defects therein the Contract Price or such other sum as may become payable under the provisions of the Contract at the times and in the manner prescribed by the Contract.

In Witness whereof the parties hereto have caused this Agreement to be executed the day and year first before written in accordance with their respective laws.

The Common Seal of _____

was hereunto affixed in the presence of:-

or

Signed Sealed and Delivered by the

said _____

in the presence of:

EDITORIAL AMENDMENTS

Following publication of the Fourth Edition in 1987 of the Conditions of Contract for Works of Civil Engineering Construction, a number of editorial amendments were agreed by FIDIC. The amendments have been incorporated during reprinting and the list below clarifies the differences between this copy and the original document.

Foreword	The last sentence of the first paragraph previously read 'The Conditions are equally suitable for use on domestic contracts.'
Page 6	Sub-Clause 10.1. A comma has been inserted after the word 'Contract' in the second line. The third sentence previously read 'Such security shall be in such form as may be agreed between the Employer and the Contractor.'
Page 11	Sub-Clause 22.1 (b) was previously one complete paragraph, ie there was no space between the words "... other than the Works)," and the remainder of the Sub-Clause.
Page 15	Sub-Clause 31.2 (c) was previously one complete paragraph, ie there was no space between the words "... nature for any such," and the remainder of the Sub-Clause.
Page 20	Sub-Clause 44.3. The penultimate sentence was previously, "In both such cases the Engineer shall notify the Contractor accordingly, with a copy to the Employer."
Page 21	Sub-Clause 49.1 (a). The word 'substantial' has been deleted.
Page 29	Sub-Clause 60.3 (b) was previously two paragraphs, the second beginning with the words 'Provided also that if at such time . . . '
Page 30	Sub-Clause 60.5. The word 'The' has been inserted at the beginning of the final paragraph.
Page 35	Sub-Clause 67.1. In the second line of the fourth paragraph, the word 'notice' replaces the word 'notification'.
Page 38	Reference to Part II. In the third line, the words 'and (iv)' have been inserted after paragraph (a) (i).
Tender	
Item 3.	The word 'Works' has been capitalised.
Agreement	
Line 4	Inverted commas have been inserted following the words 'the Employer.'
Line 6	Inverted commas have been inserted before the word 'the' instead of before the word 'Contractor.'
Line 8	The word Contractor has been capitalised.
Line 9	The words "Tender by the Contractor" were previously "Tender by Contractor."
Line 11	The word 'Agreement' has been capitalised.
Last lines	The Agreement previously ended with the words 'Binding Signature of Employer' and 'Binding Signature of Contractor'.



FEDERATION INTERNATIONALE DES INGENIEURS-CONSEILS

CONDITIONS OF CONTRACT

FOR WORKS OF CIVIL

ENGINEERING CONSTRUCTION

**PART II CONDITIONS OF PARTICULAR
APPLICATION WITH GUIDELINES FOR
PREPARATION OF PART II CLAUSES**

FOURTH EDITION 1987

Reprinted 1988 with editorial amendments

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INTRODUCTION

The terms of the Fourth Edition of the Conditions of Contract for Works of Civil Engineering Construction have been prepared by the Fédération Internationale des Ingénieurs-Conseils (FIDIC) and are recommended for general use for the purpose of construction of such works where tenders are invited on an international basis. The Conditions are equally suitable for use on domestic contracts.

The version in English of the Conditions is considered by FIDIC as the official and authentic text for the purpose of translation.

The Clauses of general application have been grouped together in a separate bound document and are referred to as Part I — General Conditions. They have been printed in a form which will facilitate their inclusion, as printed, in the contract documents normally prepared.

In the preparation of the Conditions it was recognised that while there are numerous Clauses which will be generally applicable there are some Clauses which must necessarily vary to take account of the circumstances and locality of the Works.

Part I — General Conditions and Part II — Conditions of Particular Application together comprise the Conditions governing the rights and obligations of the parties.

For this reason a Part II standard form has not been produced. It will be necessary to prepare a Part II document for each individual contract and the Guidelines are intended to aid in this task by giving options for various clauses where appropriate.

Part II clauses may arise for one or more reasons, of which the following are examples:

- (i) Where the wording in Part I specifically requires that further information be included in Part II and the Conditions would not be complete without that information, namely in Sub-Clauses 1.1 paragraphs (a) (i) and (iv), 5.1 (part), 14.1, 14.3, 68.2 and 70.1
- (ii) Where the wording in Part I indicates that supplementary information may be included in Part II, but the conditions would still be complete without such information, namely in Sub-Clauses 2.1 paragraph (b), 5.1 (part), 21.1 paragraph (b) and 72.2.
- (iii) Where the type, circumstances or locality of the Works necessitate additional Clauses or Sub-Clauses.
- (iv) Where the law of the country or exceptional circumstances necessitate an alteration in Part I. Such alterations should be effected by stating in Part I that a particular Clause, or part of a Clause, in Part I is deleted and giving the substitute Clause, or part, as applicable.

As far as possible, in the Clauses that are mentioned hereunder, example wording is provided. In the case of some Clauses, however, only an aide-memoire for the preparation is given. Before incorporating any example wording it must be checked to ensure that it is wholly suitable for the particular circumstances and, if not, it must be varied. Where example wording is varied and in all cases where additional material is included in Part II, care must be taken that no ambiguity is created with Part I or between the Clauses in Part II.

Dredging and Reclamation Work

Special consideration must be given to Part II where dredging and certain types of reclamation work are involved. Dredgers are considerably more expensive than most items of Contractor's Equipment and the capital value of a dredger can often exceed the value of the Contract on which it is used.

For this reason, it is in the interests of both the Employer and the Contractor that a dredger is operated intensively in the most economic fashion, subject to the quality of work and any other over-riding factors. With this end in view, it is customary to allow the Contractor to execute dredging work continuously by day and by night seven days a week. Another difference from most civil engineering is that on dredging work the Contractor is not normally held responsible for the remedying of defects after the date of completion as certified under Clause 48. Part II contains explanations and example wording to cover the above points and others relating to dredging. Clauses 11, 12, 18, 19, 28, 40, 45, 49, 50 and 51 are those which most often require attention in Part II when dredging work is involved and reference is included under each of these Clauses. Other Clauses may also need additions in Part II in certain circumstances. Reclamation work varies greatly in character and each instance must be considered before deciding whether it is appropriate to introduce in Part II changes similar to those adopted for dredging, or to use the standard civil engineering form unaltered.

PART II CONDITIONS OF PARTICULAR APPLICATION

Clause 1

Sub-Clause 1.1 — Definitions

(a) (i) The Employer is (insert name)

(a) (iv) The Engineer is (insert name)

If further definitions are essential, for example the name of an International Financing Institution (IFI), additions should be made to the list.

Clause 2

Sub-Clause 2.1 — Engineer's Duties

EXAMPLE

The Engineer shall obtain the specific approval of the Employer before carrying out his duties in accordance with the following Clauses of Part I:

(a) Clause (insert applicable number)

(b) Clause (insert applicable number)

(c) Clause (insert applicable number)

This list should be extended or reduced as necessary.

In some cases the obligation to obtain the approval of the Employer may apply to only one Sub-Clause out of several in a Clause or approval may only be necessary beyond certain limits, monetary or otherwise. Where this is so, the example wording must be varied.

If the obligation to obtain the approval of the Employer could lead to the Engineer being unable to take action in an emergency, where matters of safety are involved, an additional paragraph may be necessary.

EXAMPLE

Notwithstanding the obligation, as set out above, to obtain approval, if, in the opinion of the Engineer, an emergency occurs affecting the safety of life or of the Works or of adjoining property, he may, without relieving the Contractor of any of his duties and responsibilities under the Contract, instruct the Contractor to execute all such work or to do all such things as may, in the opinion of the Engineer, be necessary to abate or reduce the risk. The Contractor shall forthwith comply, despite the absence of approval of the Employer, with any such instruction of the Engineer. The Engineer shall determine an addition to the Contract Price, in respect of such instruction, in accordance with Clause 52 and shall notify the Contractor accordingly, with a copy to the Employer.

Clause 5

Sub-Clause 5.1 — Language/s and Law

(a) The language is (insert as applicable)

(b) The law is that in force in (insert name of country)

If necessary (a) above should be varied to read:

The languages are (insert as applicable)

and there should be added

The Ruling Language is (insert as applicable)

Sub-Clause 5.2 — Priority of Contract Documents

Where it is decided that an order of precedence of all documents should be included, the Sub-Clause may be varied as follows:

EXAMPLE

Delete the documents listed 1 – 6 and substitute:

- (1) the Contract Agreement (if completed);*
- (2) the Letter of Acceptance;*
- (3) the Tender;*
- (4) the Conditions of Contract Part II;*
- (5) the Conditions of Contract Part I;*
- (6) the Specification;*
- (7) the Drawings; and*
- (8) the priced Bill of Quantities*

or

Where it is decided that no order of precedence of documents should be included, this Sub-Clause may be varied as follows:

EXAMPLE

Delete the text of the Sub-Clause and substitute:

The several documents forming the Contract are to be taken as mutually explanatory of one another, but in the case of ambiguities or discrepancies the priority shall be that accorded by law. If, in the opinion of the Engineer, such ambiguities or discrepancies make it necessary to issue any instruction to the Contractor in explanation or adjustment, the Engineer shall have authority to issue such instruction.

Clause 9

Where it is decided that a Contract Agreement should be entered into and executed the form must be annexed to these Conditions as stated in Sub-Clause 9.1 of these Conditions.

A suitable form is annexed to Part 1 — General Conditions.

Clause 10

Sub-Clause 10.1 — Performance Security

Where it is decided that a performance security should be obtained by the Contractor, the form must be annexed to these Conditions as stated in Sub-Clause 10.1 of Part I of these Conditions.

Two example forms of performance security are given on pages 7, 8 and 9. The Clause and wording of the example forms may have to be varied to comply with the law of the Contract which may require the forms to be executed under seal.

Where there is provision in the Contract for payments to the Contractor to be made in foreign currency, Sub-Clause 10.1 of Part I of these Conditions may be varied.

EXAMPLE

After the first sentence, insert the following sentence:

The security shall be denominated in the types and proportions of currencies stated in the Appendix to Tender.

Where the source of the performance security is to be restricted, an additional Sub-Clause may be added.

EXAMPLE SUB-CLAUSES

- Source of Performance Security** **10.4** *The performance security, submitted by the Contractor in accordance with Sub-Clause 10.1, shall be furnished by an institution registered in (insert the country where the Works are to be executed) or licensed to do business in such country.*
- or
- Source of Performance Security** **10.4** *Where the performance security is in the form of a bank guarantee, it shall be issued by:*
- (a) a bank located in the country of the Employer, or*
 - (b) a foreign bank through a correspondent bank located in the country of the Employer.*

Clause 11

Where the bulk or complexity of the data, or reasons of security enforced by the country where the Works are to be executed, makes it impracticable for the Employer to make all data available with the Tender Documents and inspection of some data by the Contractor at an office is therefore expected, it would be advisable to make the circumstances clear.

EXAMPLE SUB-CLAUSE

- Access to Data** **11.2** *Data made available by the Employer in accordance with Sub-Clause 11.1 shall be deemed to include data listed elsewhere in the Contract as open for inspection at (insert particulars of the office or offices where such data is stored)*

Sub-Clause 11.1 — Inspection of Site

For a Contract comprising dredging and reclamation work the Clause may be varied as follows:

EXAMPLE

In the first paragraph, delete the words 'hydrological and sub-surface' and substitute 'hydrographic and sub-seabed'.

In the second paragraph, under (a) delete the word 'sub-surface' and substitute 'sub-seabed' and under (b) delete the word 'hydrological' and substitute 'hydrographic'.

Clause 12

Sub-Clause 12.2 — Adverse Physical Obstructions or Conditions

For a Contract comprising dredging and some types of reclamation work the Sub-Clause may require to be varied.

EXAMPLE

Delete the words 'other than climatic conditions on the Site,'.

Clause 14

Sub-Clause 14.1 — Programme to be Submitted

The time within which the programme shall be submitted shall be (insert number) days.

Sub-Clause 14.3 — Cash Flow Estimate to be Submitted

The time within which the detailed cash flow estimate shall be submitted shall be (insert number) days.

In both examples given above it is desirable for consistency with the rest of the Conditions that the number of days inserted should be a multiple of seven.

EXAMPLE PERFORMANCE GUARANTEE

By this guarantee We, _____
whose registered office is at _____
(hereinafter called "the Contractor") and _____
whose registered office is at _____
(hereinafter called "the Guarantor") are held and firmly bound unto
_____ (hereinafter called "the Employer")
in the sum of _____ for the payment of which sum
the Contractor and the Guarantor bind themselves, their successors and assigns
jointly and severally by these presents.

Whereas the Contractor by an Agreement made between the Employer of the one
part and the Contractor of the other part has entered into a Contract (hereinafter
called "the said Contract") to execute and complete certain Works and remedy
any defects therein as therein mentioned in conformity with the provisions of the
said Contract.

Now the Condition of the above-written Guarantee is such that if the Contractor
shall duly perform and observe all the terms provisions conditions and
stipulations of the said Contract on the Contractor's part to be performed and
observed according to the true purport intent and meaning thereof or if on
default by the Contractor the Guarantor shall satisfy and discharge the damages
sustained by the Employer thereby up to the amount of the above-written
Guarantee then this obligation shall be null and void but otherwise shall be and
remain in full force and effect but no alteration in terms of the said Contract or in
the extent or nature of the Works to be executed, completed and defects therein
remedied thereunder and no allowance of time by the Employer or the Engineer
under the said Contract nor any forbearance or forgiveness in or in respect of any
matter or thing concerning the said Contract on the part of the Employer or the
said Engineer shall in any way release the Guarantor from any liability under the
above-written Guarantee. Provided always that the above obligation of
Guarantor to satisfy and discharge the damages sustained by the Employer shall
arise only

(a) on written notice from both the Employer and the Contractor that the
Employer and the Contractor have mutually agreed that the amount of damages
concerned is payable to the Employer or

(b) on receipt by the Guarantor of a legally certified copy of an award issued in
arbitration proceeding carried out in conformity with the terms of the said
Contract that the amount of the damages is payable to the Employer.

Signed on _____	Signed on _____
on behalf of _____	on behalf of _____
by _____	by _____
in the capacity of _____	in the capacity of _____
in the presence of _____	in the presence of _____

EXAMPLE SURETY BOND FOR PERFORMANCE

Know all Men by these Presents that (name and address of Contractor)

as Principal (hereinafter called "the Contractor") and (name, legal title and address of Surety) _____

as Surety (herein after called "the Surety"), are held and firmly bound unto (name and address of Employer) _____

as Obligee (hereinafter called "the Employer") in the amount of _____ for the payment of which sum, well and truly to be made, the Contractor and the Surety bind themselves, their successors and assigns, jointly and severally, firmly by these presents.

Whereas the Contractor has entered into a written contract agreement with the Employer dated the _____ day of _____ 19 _____ for (name of Works) _____ in accordance with the plans and specifications and amendments thereto, to the extent herein provided for, are by reference made part hereof and are hereinafter referred to as the Contract.

Now, therefore, the Condition of this Obligation is such that, if the Contractor shall promptly and faithfully perform the said Contract (including any amendments thereto) then this obligation shall be null and void; otherwise it shall remain in full force and effect.

Whenever Contractor shall be, and declared by Employer to be, in default under the Contract, the Employer having performed the Employer's obligations thereunder, the Surety may promptly remedy the default, or shall promptly:-

- (1) Complete the Contract in accordance with its terms and conditions; or*
- (2) Obtain a bid or bids for submission to the Employer for completing the Contract in accordance with its terms and conditions, and upon determination by Employer and Surety of the lowest responsible bidder, arrange for a contract between such bidder and Employer and make available as work progresses (even though there should be a default or a succession of defaults under the contract or contracts of completion arranged under this paragraph) sufficient funds to pay the cost of completion less the balance of the Contract Value; but not exceeding, including other costs and damages for which the Surety may be liable hereunder, the amount set forth in the first paragraph hereof. The term "balance of the Contract Value", as used in this paragraph, shall mean the total amount payable by Employer to Contractor under the Contract, less the amount properly paid by Employer to Contractor; or*
- (3) Pay the Employer the amount required by Employer to complete the Contract in accordance with its terms and conditions any amount up to a total not exceeding the amount of this Bond.*

The Surety shall not be liable for a greater sum than the specified penalty of this Bond.

Any suit under this Bond must be instituted before the issue of the Defects Liability Certificate.

No right of action shall accrue on this Bond to or for the use of any person or corporation other than the Employer named herein or the heirs, executors, administrators or successors of the Employer.

<i>Signed on</i> _____	<i>Signed on</i> _____
<i>on behalf of</i> _____	<i>on behalf of</i> _____
<i>by</i> _____	<i>by</i> _____
<i>in the capacity of</i> _____	<i>in the capacity of</i> _____
<i>in the presence of</i> _____	<i>in the presence of</i> _____

Clause 15

Where the language in which the Contract documents have been drawn up is not the language of the country in which the Works are to be executed, or where for any other reason it is necessary to stipulate that the Contractor's authorised representative shall be fluent in a particular language, an additional Sub-Clause may be added.

EXAMPLE SUB-CLAUSES

**Language Ability
of Contractor's
Representative**

15.2 *The Contractor's authorised representative shall be fluent in (insert name of language).*

or

**Interpreter to be
Made Available**

15.2 *If the Contractor's authorised representative is not, in the opinion of the Engineer, fluent in (insert name of language), the Contractor shall have available on Site at all times a competent interpreter to ensure the proper transmission of instructions and information.*

Clause 16

Where the language in which the Contract documents have been drawn up is not the language of the country in which the Works are to be executed, or where for any other reason it is necessary to stipulate that members of the Contractor's superintending staff shall be fluent in a particular language, an additional Sub-Clause may be added.

EXAMPLE SUB-CLAUSE

**Language Ability
of Superintending
Staff**

16.3 *A reasonable proportion of the Contractor's superintending staff shall have a working knowledge of (insert name of language) or the Contractor shall have available on Site at all times a sufficient number of competent interpreters to ensure the proper transmission of instructions and information.*

Where there is a desire, but not a legal requirement, that the Contractor makes reasonable use of materials from or persons resident in the country in which the Works are to be executed, an additional Sub-Clause may be added.

EXAMPLE SUB-CLAUSE

**Employment of
Local Personnel**

16.4 *The Contractor is encouraged, to the extent practicable and reasonable, to employ staff and labour from sources within (insert name of country).*

Clause 18

Sub-Clause 18.1 — Boreholes and Exploratory Excavation

For a Contract comprising dredging and reclamation work the Sub-Clause may require to be varied.

EXAMPLE

Add second sentence as follows:

Such exploratory excavation shall be deemed to include dredging.

Clause 19

Sub-Clause 19.1 — Safety, Security and Protection of the Environment

Where a Contract includes dredging the possibility of pollution should be given particular attention and additional wording may be required. For example, where fishing and recreation areas might be influenced, the Contractor should be required to plan and execute the dredging so that the effect is kept to a minimum. Where there is a risk of chemical pollution from soluble sediments in the dredging area, for instance in a harbour, it is important that sufficient information is provided with the Tender documents. Responsibilities should be clearly defined.

Clause 21

Sub-Clause 21.1 — Insurance of Works and Contractor's Equipment

Where there is provision in the Contract for payments to the Contractor to be made in foreign currency, this Sub-Clause may be varied.

EXAMPLE

Add final sentence as follows:

The insurance in paragraphs (a) and (b) shall provide for compensation to be payable in the types and proportions of currencies required to rectify the loss or damage incurred.

Where it is decided to state the deductible limits for the Employer's Risks, this Sub-Clause may be varied.

EXAMPLE

Add to paragraph (a) as follows:

and with deductible limits for the Employer's Risks not exceeding (insert amounts)

Clauses 21, 23 and 25. Insurances Arranged by Employer

In certain circumstances, such as where a number of separate contractors are employed on a single project, or phased take-over is involved, it may be preferable for the Employer to arrange insurance of the Works, and Third Party insurance. In such case, it must be clear in the Contract that the Contractor is not precluded from taking out any additional insurance, should he desire to do so, over and above that to be arranged by the Employer.

Tenderers must be provided at the Tender stage with details of the insurance to be arranged by the Employer, in order to assess what provision to make in their rates and prices for any additional insurance, and for the amount of policy deductibles which they will be required to bear. Such details shall form part of the Contract between the Employer and the Contractor.

Example wording to allow for the arrangement of insurance by the Employer is as follows:

EXAMPLE

Clause 21

Delete the text of the Clause and substitute the following re-numbered Sub-Clauses:

- | | | |
|--|-------------|---|
| Insurance of Works | 21.1 | <i>Without limiting his or the Contractor's obligations and responsibilities under Clause 20, the Employer will insure:</i>

<i>(a) the Works, together with materials and Plant for incorporation therein, to the full replacement cost</i>

<i>(b) an additional sum to cover any additional costs of and incidental to the rectification of loss or damage including professional fees and the cost of demolishing and removing any part of the Works and of removing debris of whatsoever nature.</i> |
| Insurance of Contractor's Equipment | 21.2 | <i>The Contractor shall, without limiting his obligations and responsibilities under Clause 20, insure the Contractor's Equipment and other things brought on to the site by the Contractor, for a sum sufficient to provide for their replacement at the Site</i> |
| Scope of Cover | 21.3 | <i>The insurance in sub Clause 21.1 shall be in the joint names of the Contractor and the Employer and shall cover:</i> |

(a) the Employer and the Contractor against loss or damage as provided in the details of insurance annexed to these Conditions, from the start of work at the Site until the date of issue of the relevant Taking-Over Certificate in respect of the Works or any Section or part thereof as the case may be, and

(b) the Contractor for his liability:

(i) during the Defects Liability Period for loss or damage arising from a cause occurring prior to the commencement of the Defects Liability Period, or

(ii) occasioned by the Contractor in the course of any operations carried out by him for the purpose of complying with his obligations under Clauses 49 and 50.

**Responsibility for
Amounts not
Recovered**

21.4 Any amounts not insured or not recovered from the insurers shall be borne by the Employer or the Contractor in accordance with their responsibilities under Clause 20.

Clause 23

Delete the text of the Clause and substitute:

**Third Party
Insurance
(including
Employer's
Property)**

23.1 Without limiting his or the Contractor's obligations and responsibilities under Clause 22, the Employer will insure in the joint names of the Contractor and the Employer, against liabilities for death of or injury to any person (other than as provided in Clause 24) or loss of or damage to any property (other than the Works) arising out of the performance of the Contract, as provided in the details of insurance referred to in Sub-Clause 21.3.

Clause 25

Delete the text of the Clause and substitute:

**Evidence
and Terms of
Insurances**

25.1 The insurance policies to be arranged by the Employer pursuant to Clauses 21 and 23 shall be consistent with the general terms described in the Tender and copies of such policies shall when required be supplied by the Employer to the Contractor.

**Adequacy of
Insurances**

25.2 The Employer shall notify the insurers of changes in the nature, extent or programme for execution of the Works and ensure the adequacy of the insurances at all times in accordance with the terms of the Contract and shall, when required, produce to the Contractor the insurance policies in force and the receipts for payment of the premiums. No variations shall be made to the insurances by the Employer without the prior approval of the Contractor.

**Remedy on
Employer's
Failure to Insure**

25.3 If and so far as the Employer fails to effect and keep in force any of the insurances referred to in Sub-Clause 25.1, then the Contractor may effect and keep in force any such insurance and pay any premium as may be necessary for that purpose and add the amount so paid to any monies due or to become due to the Contractor, or recover the same as a debt due from the Employer.

**Compliance with
Policy Conditions**

25.4 In the event that the Contractor or the Employer fails to comply with conditions imposed by the insurance policies effected pursuant to the Contract, each shall indemnify the other against all losses and claims arising from such failure.

Clause 28

Sub-Clause 28.2 — Royalties

For a Contract comprising dredging and reclamation work and for any other Contract involving the dumping of materials the Sub-Clause may require to be varied.

EXAMPLE

Add second sentence as follows:

The Contractor shall also be liable for all payments or compensation, if any, levied in relation to the dumping of part or all of any such materials.

It is sometimes the case on dredging contracts for the Employer to bear the costs of tonnage and other royalties, rent and other payments or compensation. If such conditions are to apply, Sub-Clause 28.2 should be varied either by adding wording or by deleting the existing wording and substituting new wording.

Clause 31

Where the particular requirements of other contractors are known within reasonable limits at the time of preparation of the Contract documents, details must be stated. The Specification is usually the appropriate place to do so but, exceptionally, some reference may be desirable in the Conditions. In that case, an additional Sub-Clause or Sub-Clause could be added to this Clause.

Clause 34

It will generally be necessary to add a number of Sub-Clauses, to take account of the circumstances and locality of the Works, covering such matters as: permits and registration of expatriate employees; repatriation to place of recruitment; provision of temporary housing for employees; requirements in respect of accommodation for staff of Employer and Engineer; standards of accommodation to be provided; provision of access roads, hospital, school, power, water, drainage, fire services, refuse collection, communal buildings, shops, telephones; hours and conditions of working; rates of pay; compliance with labour legislation; maintenance of records of safety and health.

EXAMPLE SUB-CLAUSES (to be numbered, as appropriate)

Rates of Wages and Conditions of Labour	34.	<i>The Contractor shall pay rates of wages and observe conditions of labour not less favourable than those established for the trade or industry where the work is carried out. In the absence of any rates of wages or conditions of labour so established, the Contractor shall pay rates of wages and observe conditions of labour which are not less favourable than the general level of wages and conditions observed by other employers whose general circumstances in the trade or industry in which the Contractor is engaged are similar.</i>
Employment of Persons in the Service of Others	34.	<i>The Contractor shall not recruit or attempt to recruit his staff and labour from amongst persons in the service of the Employer or the Engineer.</i>
Repatriation of Labour	34.	<i>The Contractor shall be responsible for the return to the place where they were recruited or to their domicile of all such persons as he recruited and employed for the purposes of or in connection with the Contract and shall maintain such persons as are to be so returned in a suitable manner until they shall have left the Site or, in the case of persons who are not nationals of and have been recruited outside (insert name of country), shall have left (insert name of country).</i>
Housing for Labour	34.	<i>Save insofar as the Contract otherwise provides, the Contractor shall provide and maintain such accommodation and amenities as he may consider necessary for all his staff and labour, employed for the purposes of or in connection with the Contract, including all fencing, water supply (both for drinking and other purposes), electricity supply, sanitation, cookhouses, fire prevention and fire-fighting equipment, air conditioning, cookers, refrigerators, furniture and other requirements in connection with such accommodation or amenities. On completion of the Contract, unless otherwise agreed with the Employer, the temporary camps/housing provided by the Contractor shall be removed and the site reinstated to its original condition, all to the approval of the Engineer.</i>
Accident Prevention Officer; Accidents	34.	<i>The Contractor shall have on his staff at the Site an officer dealing only with questions regarding the safety and protection against accidents of all staff and labour. This officer shall be qualified for this work and shall have the authority to issue instructions and shall take protective measures to prevent accidents.</i>

Health and Safety	34.	<i>Due precautions shall be taken by the Contractor, and at his own cost, to ensure the safety of his staff and labour and, in collaboration with and to the requirements of the local health authorities, to ensure that medical staff, first aid equipment and stores, sick bay and suitable ambulance service are available at the camps, housing and on the Site at all times throughout the period of the Contract and that suitable arrangements are made for the prevention of epidemics and for all necessary welfare and hygiene requirements.</i>
Measures against Insect and Pest Nuisance	34.	<i>The Contractor shall at all times take the necessary precautions to protect all staff and labour employed on the site from insect nuisance, rats and other pests and reduce the dangers to health and the general nuisance occasioned by the same. The Contractor shall provide his staff and labour with suitable prophylactics for the prevention of malaria and take steps to prevent the formation of stagnant pools of water. He shall comply with all the regulations of the local health authorities in these respects and shall in particular arrange to spray thoroughly with approved insecticide all buildings erected on the Site. Such treatment shall be carried out at least once a year or as instructed by the Engineer. The Contractor shall warn his staff and labour of the dangers of bilharzia and wild animals.</i>
Epidemics	34.	<i>In the event of any outbreak of illness of an epidemic nature, the Contractor shall comply with and carry out such regulations, orders and requirements as may be made by the Government, or the local medical or sanitary authorities, for the purpose of dealing with and overcoming the same.</i>
Burial of the Dead	34.	<i>The Contractor shall make all necessary arrangements for the transport, to any place as required for burial, of any of his expatriate employees or members of their families who may die in (insert name of country). The Contractor shall also be responsible, to the extent required by the local regulations, for making any arrangements with regard to burial of any of his local employees who may die while engaged upon the Works.</i>
Supply of Foodstuffs	34.	<i>The Contractor shall arrange for the provision of a sufficient supply of suitable food at reasonable prices for all his staff and labour, or his Subcontractors, for the purposes of or in connection with the Contract.</i>
Supply of Water	34.	<i>The Contractor shall, so far as is reasonably practicable, having regard to local conditions, provide on the Site an adequate supply of drinking and other water for the use of his staff and labour.</i>
Alcoholic Liquor or Drugs	34.	<i>The Contractor shall not, otherwise than in accordance with the Statutes, Ordinances and Government Regulations or Orders for the time being in force, import, sell, give, barter or otherwise dispose of any alcoholic liquor or drugs, or permit or suffer any such importation, sale, gift, barter or disposal by his Subcontractors, agents, staff or labour.</i>
Arms and Ammunition	34.	<i>The Contractor shall not give, barter or otherwise dispose of to any person or persons, any arms or ammunition of any kind or permit or suffer the same as aforesaid.</i>
Festivals and Religious Customs	34.	<i>The Contractor shall in all dealings with his staff and labour have due regard to all recognised festivals, days of rest and religious or other customs.</i>
Disorderly Conduct	34.	<i>The Contractor shall at all times take all reasonable precautions to prevent any unlawful, riotous or disorderly conduct by or amongst his staff and labour and for the preservation of peace and protection of persons and property in the neighbourhood of the Works against the same.</i>

Clause 35

Additional Sub-Clauses may be desirable to cover circumstances which require the maintenance of particular records or the provision of certain specific reports.

EXAMPLE SUB-CLAUSES (to be numbered, as appropriate)

- | | | |
|-------------------------------------|------------|---|
| Records of Safety and Health | 35. | <i>The Contractor shall maintain such records and make such reports concerning safety, health and welfare of persons and damage to property as the Engineer may from time to time prescribe.</i> |
| Reporting of Accidents | 35. | <i>The Contractor shall report to the Engineer details of any accident as soon as possible after its occurrence. In the case of any fatality or serious accident, the Contractor shall, in addition, notify the Engineer immediately by the quickest available means.</i> |

Clause 40

For a Contract comprising dredging and some types of reclamation work the Clause may be varied.

Sub-Clause 40.1 — Suspension of Work

EXAMPLE

Delete paragraph (c) and renumber paragraph (d) as (c).

Sub-Clause 40.3 — Suspension Lasting more than 84 Days

EXAMPLE

In the first sentence delete the words ‘, (c) or (d)’ and substitute ‘or (c)’.

Clause 43

Sub-Clause 43.1 — Time for Completion

Where completion is stated to be by a date and not within a period of time, the Sub-Clause will require to be varied.

EXAMPLE

Delete the words, ‘within the time...such extended time’ and substitute ‘by the date or dates stated in the Appendix to Tender for the whole of the Works or the Section (as the case may be) or such later date or dates’.

Clause 45

For a Contract located in an isolated area, where environmental restrictions do not apply or where a Contract comprises work, such as dredging and reclamation, that may require continuous working, the Clause may be varied.

EXAMPLE

Delete Sub-Clause 45.1 and substitute:

- | | | |
|----------------------|-------------|--|
| Working Hours | 45.1 | <i>Subject to any provision to the contrary contained in the Contract, the Contractor shall have the option to work continuously by day and by night and on locally recognised days of rest.</i> |
|----------------------|-------------|--|

The Contractor's option may be further extended by substituting, in place of the last three words:

holidays or days of rest.

Clause 47

Where it is desired to make provision for the payment of a bonus or bonuses for early completion, an additional Sub-Clause may be added.

In the case where a bonus is provided for early completion of the whole of the Works:

EXAMPLE SUB-CLAUSE

- Bonus for Completion** **47.3** *If the Contractor achieves completion of the Works prior to the time prescribed by Clause 43, the Employer shall pay to the Contractor a sum of (insert figure) for every day which shall elapse between the date stated in the Taking-Over Certificate in respect of the Works issued in accordance with Clause 48 and the time prescribed in Clause 43.*

or

In the case where bonuses are provided for early completion of Sections of the Works and details, other than the dates, are given in the Specification:

EXAMPLE SUB-CLAUSE

- Bonus for Completion** **47.3** *Sections are required to be completed by the dates given in the Appendix to Tender in order that such Sections may be occupied and used by the Employer in advance of the completion of the whole of the Works.*

Details of the work required to be executed to entitle the Contractor to bonus payments and the amount of the bonuses are stated in the Specification.

For the purposes of calculating bonus payments, the dates given in the Appendix to Tender for completion of Sections are fixed and, unless otherwise agreed, no adjustments of the dates by reason of granting an extension of time pursuant to Clause 44 or any other Clause of these Conditions will be allowed.

Issue of certificates by the Engineer that the Sections were satisfactory and complete by the dates given on the certificates shall, subject to Clause 60, entitle the Contractor to the bonus payments calculated in accordance with the Specification.

Clause 48

Where it can be foreseen that, when the whole of the Works have been substantially completed, the Contractor may be prevented by reasons beyond his control from carrying out the Tests on Completion, an additional Sub-Clause may be added.

EXAMPLE SUB-CLAUSE

- Prevention from Testing** **48.5** *If the Contractor is prevented from carrying out the Tests on Completion by a cause for which the Employer or the Engineer or other contractors employed by the Employer are responsible, the Employer shall be deemed to have taken over the Works on the date when the Tests on Completion would have been completed but for such prevention. The Engineer shall issue a Taking-Over Certificate accordingly. Provided always that the Works shall not be deemed to have been taken over if they are not substantially in accordance with the Contract.*

If the Works are taken over under this Sub-Clause the Contractor shall nevertheless carry out the Tests on Completion during the Defects Liability Period. The Engineer shall require the Tests to be carried out by giving 14 days notice.

Any additional costs to which the Contractor may be put, in making the Tests on Completion during the Defects Liability Period, shall be added to the Contract Price.

Clause 49

For a Contract which includes a high proportion of Plant, an additional Sub-Clause may be necessary.

EXAMPLE SUB-CLAUSE

Extension of Defects Liability

49.5 *The provisions of this Clause shall apply to all replacements or renewals of Plant carried out by the Contractor to remedy defects and damage as if replacements and renewals had been taken over on the date they were completed. The Defects Liability Period for the Works shall be extended by a period equal to the period during which the Works cannot be used by reason of a defect or damage. If only part of the Works is affected the Defects Liability Period shall be extended only for that part. In neither case shall the Defects Liability Period extend beyond 2 years from the date of taking over.*

When progress in respect of Plant has been suspended under Clause 40, the Contractor's obligations under this Clause shall not apply to any defects occurring more than 3 years after the Time for Completion established on the date of the Letter of Acceptance.

For a Contract comprising dredging work an additional Sub-Clause may be added.

EXAMPLE SUB-CLAUSE

No Remedying of Defects in Dredging Work after Completion

49.5 *Notwithstanding Sub-Clause 49.2, the Contractor shall have no responsibility for the remedying of defects, shrinkages or other faults in respect of dredging work after the date stated in the Taking-Over Certificate.*

Clause 50

For a Contract comprising dredging work and where the second Example Sub-Clause 49.5 has been adopted, an additional Sub-Clause should be added.

EXAMPLE SUB-CLAUSE

No Responsibility for Cost of Searching of Dredging Work

50.2 *Notwithstanding Sub-Clause 50.1, the Contractor shall have no responsibility for bearing the cost of searching for any defect, shrinkage or other fault in respect of dredging work after the date stated in the Taking-Over Certificate.*

Clause 51

Sub-Clause 51.1 — Variations

For a Contract comprising dredging and some types of reclamation work the Sub-Clause may require to be varied.

EXAMPLE

Add final sentence as follows:

Provided also that the Contractor shall be under no obligation to execute a variation which cannot be executed by the Contractor's Equipment being used to be used on the Works.

Clause 52

Where provision is made in the Contract for payment in foreign currency, this Clause may be varied.

Sub-Clause 52.1 — Valuation of Variations

EXAMPLE

Add final sentence as follows:

The agreement, fixing or determination of any rates or prices as aforesaid shall include any foreign currency and the proportion thereof.

Sub-Clause 52.2 — Power of Engineer to Fix Rates

Add to first paragraph final sentence as follows:

The agreement or fixing of any rates or prices as aforesaid shall include any foreign currency and the proportion thereof.

Sub-Clause 52.3 — Variations Exceeding 15 per cent

Add final sentence as follows:

The adjustment or fixing of any sum as aforesaid shall have due regard to any foreign currency included in the Effective Contract Price and the proportion thereof.

Where it is required to place some limitation on the range of items for which the rates and prices may be subject to review, the Clause may be varied.

Sub-Clause 52.2 — Power of Engineer to Fix Rates

EXAMPLE

At the end of the first paragraph add:

Provided further that no change in the rate or price for any item contained in the Contract shall be considered unless such item accounts for an amount more than 2 per cent of the Contract Price, and the actual quantity of work executed under the item exceeds or falls short of the quantity set out in the Bill of Quantities by more than 25 per cent.

Clause 54

Where vesting of Contractor's Equipment, Temporary Works and materials in the Employer is required, additional Sub-Clauses may be added.

EXAMPLE WORDING AND SUB-CLAUSES

Sub-Clauses 54.2 and 54.3 shall be renumbered as 54.3 and 54.4 and Sub-Clauses 54.4 to 54.8 shall be renumbered as 54.6 to 54.10. Add additional Sub-Clauses as follows:

Vesting 54.2 *All Contractor's Equipment, Temporary Works and materials owned by the Contractor, or by any company in which the Contractor has a controlling interest, shall, when on the Site, be deemed to be the property of the Employer. Provided always that the vesting of such property in the Employer shall not prejudice the right of the Contractor to the sole use of the said Contractor's Equipment, Temporary Works and materials for the purpose of the Works nor shall it affect the Contractor's responsibility to operate and maintain the same under the provisions of the Contract.*

Revesting and Removal 54.5 *Upon the removal, with the consent of the Engineer under Sub-Clauses 54.1, of any such Contractor's Equipment, Temporary Works or materials as have been deemed to have become the property of the Employer under Sub-Clause 54.2, the property therein shall be deemed to revest in the Contractor and, upon completion of the Works, the property in the remainder of such Contractor's Equipment, Temporary Works and materials shall, subject to Clause 63, be deemed to revest in the Contractor.*

Clause 60

Additional Sub-Clauses may be necessary to cover certain other matters relating to payments.

Where payments are to be made in various currencies in predetermined proportions and calculated at fixed rates of exchange the following 3 Sub-Clauses, which should be taken together, may be added:

EXAMPLE SUB-CLAUSES (to be numbered, as appropriate)

Currency of Account and Rates of Exchange

60. *The currency of account shall be the (insert name of currency) and for purposes of the Contract conversion between (insert name of currency) and other currencies stated in the Appendix to Tender shall be made in accordance with the Table of Exchange Rates in the Appendix to Tender. Conversion between currencies stated in such Table other than the (insert name of currency) shall be made at rates of exchange determined by use of the relative rates of exchange between such currencies and the (insert name of currency) set out therein.*

Payments to Contractor

60. *All payments to the Contractor by the Employer shall be made*
(a) in the case of payment(s) under Sub-Clause(s) 70.2 and (insert number of any other applicable Clause), in (insert name of currency/ies);
(b) in the case of payments for certain provisional sum items excluded from the Appendix to Tender, in the currencies and proportions applicable to these items at the time when the Engineer gives instructions for the work covered by these items to be carried out;
(c) in any other case, including Increase or Decrease of Costs under Sub-Clause 70.1, in the currencies and proportions stated in the Appendix to Tender applicable to such payment provided that the proportions of currencies stated in the Appendix to Tender may from time to time upon the application of either party be varied as may be agreed.

Payments to Employer

60. *All payments to the Employer by the Contractor including payments made by way of deduction or set-off shall be made*
(a) in the case of credit(s) under Sub-Clause(s) 70.2 and (insert number of any other applicable Clause) in (insert name of currency/ies);
(b) in the case of liquidated damages under Clause 47, in (insert name of currency/ies);
(c) in the case of reimbursement of any sum previously expended by the Employer, in the currency in which the sum was expended by the Employer;
(d) in any other case, in such currency as may be agreed.

If the part payable in a particular currency of any sum payable to the Contractor is wholly or partly insufficient to satisfy by way of deduction or set-off a payment due to the Employer in that currency, in accordance with the provisions of this Sub-Clause, then the Employer may if he so desires make such deduction or set-off wholly or partly as the case may be from the balance of such sum payable in other currencies.

Where all payments are to be made in one currency the following Sub-Clause may be added:

EXAMPLE SUB-CLAUSE (to be numbered, as appropriate)

Currency of Account and Payments

60. *The currency of account shall be the (insert name of currency) and all payments made in accordance with the Contract shall be in (insert name of currency). Such (insert name of currency), other than for local costs, shall be fully convertible. The percentage of such payments attributed to local costs shall be as stated in the Appendix to Tender.*

Where place of payment is to be defined the following Sub-Clause may be added:

EXAMPLE SUB-CLAUSE (to be numbered, as appropriate)

Place of Payment

60. *Payments to the Contractor by the Employer shall be made into a bank account nominated by the Contractor in the country of the currency of payment. Where payment is to be made in more than one currency separate bank accounts shall be nominated by the Contractor in the country of each currency and payments shall be made by the Employer accordingly.*

Where provision is to be included for an advance payment the following Sub-Clause may be added:

EXAMPLE SUB-CLAUSE (to be numbered, as appropriate)

- Advance Payment 60.** *An advance payment of the amount stated in the Appendix to Tender shall, following the presentation by the Contractor to the Employer of an approved performance security in accordance with Sub-Clause 10.1 and a Guarantee in terms approved by the Employer for the full value of the advance payment, be certified by the Engineer for payment to the Contractor. Such Guarantee shall be progressively reduced by the amount repaid by the Contractor as indicated in interim certificates of the Engineer issued in accordance with this Clause. The advance payment shall not be subject to retention. The advance payment shall be repaid by way of reduction in interim certificates commencing with the next certificate issued after the total certified value of the Permanent Works and any other items in the Bill of Quantities (excluding the deduction of retention) exceeds (insert figure) per cent of the sum stated in the Letter of Acceptance. The amount of the reduction in each interim certificate shall be one (insert fraction) of the difference between the total value of the Permanent Works and any other items in the Bill of Quantities (excluding the deduction of retention) due for certification in such interim certificate and the said value in the last preceding interim certificate until the advance payment has been repaid in full. Provided that upon the issue of a Taking-Over Certificate for the whole of the Works or upon the happening of any of the events specified in Sub-Clause 63.1 or termination under Clauses 65, 66 or 69, the whole of the balance then outstanding shall immediately become due and payable by the Contractor to the Employer.*

Clause 67

Where it is decided that a settlement of dispute procedure, other than that of the International Chamber of Commerce (ICC), should be used the Clause may be varied.

Sub-Clause 67.3 — Arbitration

EXAMPLE

Following paragraph (b), delete the words 'shall be finally settled...International Chamber of Commerce' and substitute 'shall be finally settled under the UNCITRAL Arbitration Rules as administered by (insert name of administering authority)'.

Where alternatives to ICC are considered care should be taken to establish that the favoured alternative is appropriate for the circumstances of the Contract and that the wording of Clause 67 is checked and amended as may be necessary to avoid any ambiguity with the alternative.

Clause 68

Sub-Clause 68.2 — Notice to Employer and Engineer

For the purposes of this Sub-Clause the respective addresses are:

(a) The Employer (insert address)

(b) The Engineer (insert address)

The addresses should be inserted when the documents are being prepared prior to inviting tenders.

Clause 69

Sub-Clause 69.1 — Default of Employer

Where the Employer is a government it may be considered appropriate to vary the Sub-Clause.

EXAMPLE

Delete paragraph (c) and renumber paragraph (d) as (c).

Where the terms of the Sub-Clause, when read in conjunction with Sub-Clause 69.3, in conflict with the law of the country the Sub-Clause may require to be varied.

EXAMPLE

Delete 'or' at the end of paragraph (c) and delete paragraph (d).

Clause 70

Three alternative methods of dealing with price adjustment are given below.

The first alternative is suitable where a contract is of short duration and no price adjustment is to be made:

Sub-Clause 70.1 — Increase or Decrease in Cost

EXAMPLE

Delete the text of the Sub-Clause and substitute

Subject to Sub-Clause 70.2, the Contract Price shall not be subject to adjustment in respect of rise or fall in the cost of labour, materials or any other matters affecting the cost of execution of the Contract.

Sub-Clause 70.2 — Subsequent Legislation

EXAMPLE

Delete the words 'other than under Sub-Clause 70.1,'.

The second alternative is suitable where price adjustment is to be made by establishing the difference in cost between the basic price and the current price of local labour and specified materials:

Sub-Clause 70.1 — Increase or Decrease in Cost

EXAMPLE

Delete the text of the Sub-Clause and substitute

Adjustments to the Contract Price shall be made in respect of rise or fall in the cost of local labour and specified materials as set out in this Sub-Clause.

(a) Local Workmen

(i) For the purpose of this Sub-Clause:

"Local Workmen" means skilled, semi-skilled and unskilled workmen of all trades engaged by the Contractor on the Site for the purpose of or in connection with the Contract or engaged full time by the Contractor off the Site for the purpose of or in connection with the Contract (by way of illustration but not limitation: workmen engaged full time in any office, store, workshop or quarry).

"Basic Rate" means the applicable basic minimum wage rate prevailing on the date 28 days prior to the latest date for submission of tenders by reason of any National or State Statute, Ordinance, Decree or other Law or any regulation or bye-law of any local or other duly constituted authority, or in order to conform with practice amongst good employers generally in the area where the Works are to be carried out.

"Current Rate" means the applicable basic minimum wage rate for Local Workmen prevailing on any date subsequent to the date 28 days prior to the latest date set for submission of tenders by reason of any National or State Statute, Ordinance, Decree or other Law or any regulation or bye-law of any local or other duly constituted authority, or in order to conform with practice amongst good employers generally in the area where the works are to be carried out.

(ii) The adjustment to the Contract Price under the terms of this Sub-Clause shall be calculated by multiplying the difference between the Basic and Current Rates for Local workmen by:

(a) the number of all hours actually worked, and also

(b) in respect of those hours worked at overtime rates, by the product of the number of said hours and the percentage addition required by the law to be paid by the Contractor for overtime.

Such adjustment may be either an addition to or a deduction from the Contract Price.

(iii) No other adjustment of the Contract Price on account of fluctuation in the remuneration of Local Workmen shall be made.

(b) Specified Materials

(i) For the purpose of this Sub-Clause:

“Specified Materials” means the materials stated in Appendix (insert reference) to Tender required on the Site for the execution and completion of the Works.

“Basic Prices” means the current prices for the specified materials prevailing on the date 28 days prior to the latest date for submission of tenders.

“Current Prices” means the current prices for the specified materials prevailing at any date subsequent to the date 28 days prior to the latest date for submission of tenders.

(ii) The adjustment to the Contract Price under the terms of this Sub-Clause shall be calculated by applying the difference between the Basic and Current Prices to the quantity of the appropriate Specified Material which is delivered to the Site during the period for which the particular Current Price is effective. Such adjustment may be either an addition to or a deduction from the Contract Price.

(iii) The Contractor shall use due diligence to ensure that excessive wastage of the Specified Materials shall not occur. Any Specified Materials removed from the Site shall be clearly identified in the records required under paragraph (d) of this Sub-Clause.

(iv) The provisions of this Sub-Clause shall apply to fuels used in Contractor's Equipment engaged on the Site for the purposes of executing the Works, including vehicles owned by the Contractor (or hired by him under long term arrangements under which the Contractor is obligated to supply fuel) engaged in transporting any staff, labour, Contractor's Equipment, Temporary Works, Plant or materials to and from the Site. Such fuels shall be clearly identified in the records required under paragraph (d) of this Sub-Clause. The provisions of this Sub-Clause shall not apply to any fuels sold or supplied to any employee of the Contractor or to any person for use in any motor vehicle not being used for the purposes of the Contract.

(v) The Contractor shall at all times have regard to suitable markets and shall, whenever buying materials a variation in the cost of which would give rise to an adjustment of the Contract Price under this Sub-Clause, be diligent to buy or procure the same at the most economical prices as are consistent with the due performance by the Contractor of his obligations under the Contract.

If at any time there shall have been any lack of diligence, default or negligence on the part of the Contractor, whether in observing the above requirements or otherwise, then, for the purposes of adjusting the Contract Price pursuant hereto, no account shall be taken of any increase in cost which may be attributable to such lack of diligence, default or negligence and the amount by which any cost would have been decreased but for such lack of diligence, default or negligence shall be deducted from the Contract Price.

(vi) No other adjustment to the Contract Price on account of fluctuation in the cost of materials shall be made.

(c) Overheads and Profits Excluded

In determining the amount of any adjustment to the Contract Price pursuant to this Sub-Clause no account shall be taken of any overheads or profits.

(d) Notices and Records

The Contractor shall forthwith, upon the happening of any event which may or may be likely to give rise to adjustment of the Contract Price pursuant to this Sub-Clause, give notice thereof to the Engineer and the Contractor shall keep such books, accounts and other documents and records as are necessary to enable adjustment under this Sub-Clause to be made and shall, at the request of the Engineer, furnish any invoices, accounts, documents or records so kept and such other information as the Engineer may require.

(e) Adjustment after Date of Completion

Adjustment to the Contract Price, after the due date for completion of the whole of the Works pursuant to Clause 43, or after the date of completion of the whole of the Works certified pursuant to Clause 48, shall be made in accordance with Current Rates or Current Prices, as applicable, ruling at the due date for completion or the date stated in the Taking-Over Certificate, whichever is the earlier.

(f) Determination of Adjustment to Contract Price

The amount of any adjustment to the Contract Price pursuant to this Sub-Clause shall be determined by the Engineer in accordance with the foregoing rules.

EXAMPLE APPENDIX TO TENDER

for use in conjunction with the second alternative.

SPECIFIED MATERIALS

MATERIAL	UNIT	PRICE AND LOCATION	TRANSPORT TO SITE	PRICE DELIVERED TO SITE	REMARKS
Bitumen					
Diesel					
Petrol					
Lubricants					
Cement					
Reinforcing Steel					
Explosives					

NOTES:

- 1. The Contractor shall provide copies of quotations to substantiate all prices included in the above table.*
- 2. All subsequent price substantiation shall be from the same source as original unless otherwise agreed by the Engineer.*
- 3. The Contractor shall submit full explanation and provide substantiating documentation for the mode of transport to Site he proposes. Only the proposed documented mode of transport shall qualify for price adjustment.*

(Note: Materials stated in the Appendix to Tender should be those of which substantial quantities are involved.)

The third alternative is suitable where price adjustment is to be made through the application of indices in a formula:

Sub-Clause 70.1 — Increase or Decrease in Cost

EXAMPLE

Delete the text of the Sub-Clause and substitute

(a) Adjustments to the Contract Price in respect of rise and fall in the cost of labour and materials and other matters affecting the cost of execution of the Works shall be calculated for each monthly statement pursuant to Sub-Clause 60.1, the Statement at Completion pursuant to Sub-Clause 60.5 and the Final Statement pursuant to Sub-Clause 60.6 in accordance with the provisions of this Sub-Clause if there shall be any changes in the following Index figures compiled by (insert details of source of indices) and published by (insert details of publication):-

- (i) the Index of the cost of Labour in (insert name of country)*
- (ii) the Index of the cost of (insert other factor, as relevant)*
- (iii) the Index of the cost of (insert other factor, as relevant)*

(b) For the purpose of this Sub-Clause:

- (i) "Base Index Figure" shall mean the index figure applicable on the date 28 days prior to the latest date for submission of tenders.*
- (ii) "Current Index Figure" shall mean the index figure applicable on the last day of the period to which the particular statement relates.*

Provided that in respect of any work the value of which is included in any such monthly statement (or Statement at Completion or Final Statement) and which was executed after the due date (or extended date) for completion of the whole of the Works, pursuant to Clause 43, the Current Index Figure shall be the index figure applicable on the aforesaid due date (or extended date) for completion of the whole of the Works.

(iii) "Effective Value" shall be the difference between:

(a) The amount which is due to the Contractor under the provisions of Sub-Clauses 60.2, 60.5 or 60.8 (before deducting retention and excluding repayment of the advance payment) less any amounts for:

work executed under nominated Subcontracts

materials and Plant on the Site, as referred to in Sub-Clause 60.1 (c)

dayworks, variations or any other items based on actual cost or current prices, and bonuses (if any)

adjustments under Clause 70,

and

(b) The amount calculated in accordance with (b) (iii) (a) of this Sub-Clause and included in the last preceding statement.

(c) The adjustment to the Contract Price shall be calculated by multiplying the Effective Value by a Price Fluctuation Factor which shall be the net sum of the products obtained by multiplying each of the proportions given in paragraph (d) of this Sub-Clause by the following fraction:

Current Index Figure — Based Index Figure

Base Index Figure

calculated using the relevant index figures.

(d) For the purpose of calculating the Price Fluctuation Factor, the proportions referred to in paragraph (c) of this Sub-Clause shall (irrespective of the actual constituents of the work) be as follows:

- 0. in respect of labour (and supervision) costs subject to adjustment by reference to the Index referred to in (a) (i) of this Sub-Clause;*
- 0. in respect of by reference to the Index referred to in (a) (ii) of this Sub-Clause;*
- 0. in respect of by reference to the Index referred to in (a) (iii) of this Sub-Clause;*
- 0. in respect of all other costs which shall not be subject to any adjustment;*

1.00 Total

(e) Where the value of an Index is not known at the time of calculation, the latest available value shall be used and any adjustment necessary shall be made in subsequent monthly statements.

(Note: The number of indices included under (a) of this Sub-Clause may be varied, if it is determined that a different number of factors should be separately identified, and in such case (d) of this Sub-Clause must be altered to be consistent.)

Clause 72

Sub-Clause 72.2 — Currency Proportions

Where it is decided that the rate or rates of exchange shall be established from a source other than the Central Bank of the country, the Sub-Clause may be varied.

EXAMPLE

Delete the words from 'prevailing...' to the end of the sentence and substitute 'stated in the Appendix to Tender'.

Clause 73 onwards

Where circumstances require, additional Clauses may be added.

EXAMPLE CLAUSES (to be numbered, starting with Clause 73, as appropriate).

Where the law applicable to the Contract does not cover bribery, the following example Clause may be added.

Bribes

- .1 If the Contractor or any of his Sub-contractors, agents or servants offers to give or agrees to offer or give to any person, any bribe, gift, gratuity or commission as an inducement or reward for doing or forbearing to do any action in relation to the Contract or any other contract with the Employer or for showing or forbearing to show favour or disfavour to any person in relation to the Contract or any other contract with the Employer, then the Employer may enter upon the Site and the Works and terminate the employment of the Contractor and the provisions of Clause 63 hereof shall apply as if such entry and termination had been made pursuant to that Clause.*

Where circumstances require that particular confidentiality is observed, the following example Clause may be added.

**Details to be
Confidential**

- .1 *The Contractor shall treat the details of the Contract as private and confidential, save in so far as may be necessary for the purposes thereof, and shall not publish or disclose the same or any particulars thereof in any trade or technical paper or elsewhere without the previous consent in writing of the Employer or the Engineer. If any dispute arises as to the necessity of any publication or disclosure for the purpose of the Contract the same shall be referred to the decision of the Employer whose award shall be final.*

Where the Contract is being financed wholly or in part by an International Financing Institution whose Articles require a restriction on the use of the funds provided, the following example Clause may be added.

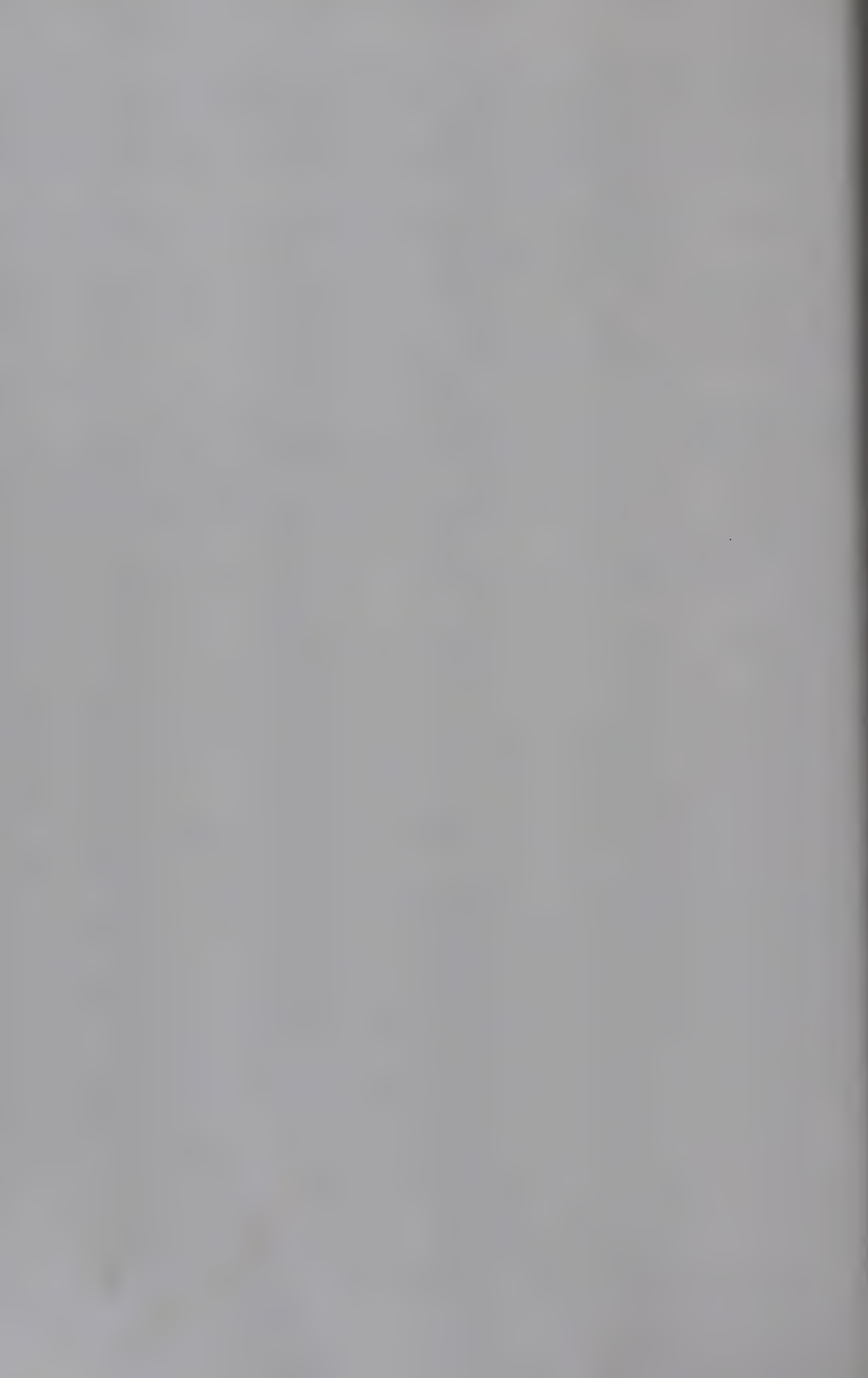
**Expenditure
Restricted**

- .1 *The Contractor shall not make any expenditures for the purpose of the Contract in the territories of any country which is not a member of (insert name of International Financing Institution) nor shall he make any expenditure for goods produced in or services supplied from such territories.*

Where the Contractor may be a joint venture, the following example Clause may be added.

**Joint and Several
Liability**

- .1 *If the Contractor is a joint venture of two or more persons, all such persons shall be jointly and severally bound to the Employer for the fulfilment of the terms of the Contract and shall designate one of such persons to act as leader with authority to bind the joint venture. The composition or the constitution of the joint venture shall not be altered without the prior consent of the Employer.*



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EDITORIAL AMENDMENTS

Following publication in 1987 of the Fourth Edition of the Conditions of Contract for Works of Civil Engineering Construction, a number of editorial amendments were agreed by FIDIC. The amendments have been incorporated during reprinting and the list below clarifies the differences between this copy and the original document.

- Page 5** Clause 9. The words 'as stated in Sub-Clause 9.1 of Part 1 of these Conditions' have been added to the final line of the first paragraph.
- Page 6** Sub-Clause 12.2. A comma has been moved from after the word 'words' to immediately before the word 'other'. The word 'Site' has been capitalised.
- Page 7** Example performance guarantee. A comma previously appeared between the words 'and' and 'complete' in the third line of the paragraph beginning 'Whereas'.
The fifth line of the paragraph beginning 'Now the Condition . . .' previously read '. . . default by the Contract . . .'
- Page 12** Sub-Clause 21.3. (b) (ii). A full stop has been inserted following '50'.
- Page 13** Sub-Clause 34. Repatriation of Labour. A comma has been inserted between the words 'country' and 'shall'.
- Page 14** Sub-Clause 34. Epidemics. The word 'Contractor' has been capitalised in the first line.
Sub-Clause 34. Alcoholic Liquor or Drugs. The word 'Contractor' has been capitalised in the first line.
- Page 15** Sub-Clause 40.3. This was previously incorrectly listed as 40.2.
- Page 17** Sub-Clause 49.5. The last line of the first paragraph previously read '. . . extend beyond 730 days'.
- Page 20** Sub-Clause 67.3. The word 'a' previously appeared before the bracket on the penultimate line of the Example.
- Line 21** Sub-Clause 70.2. A comma has been moved from after the word 'words' to immediately before the word 'other'.



FEDERATION INTERNATIONALE DES INGENIEURS-CONSEILS

CONDITIONS OF CONTRACT

FOR ELECTRICAL AND

MECHANICAL WORKS

INCLUDING ERECTION ON SITE

WITH FORMS OF TENDER AND AGREEMENT

THIRD EDITION 1987

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PREAMBLE

This Preamble must be completed in all cases referring to completed schedules where appropriate. When completed, this Preamble, the General Conditions, Specification, Employer's and Contractor's Drawings, Schedules and other documents can constitute a contract on the basis of the General Conditions in Part I. If this is not what is required, Part II must also be completed.

Commencement Date	Sub-Clause 1.1.1.(i) The date for commencement of the Works is _____
The Employer	Sub-Clause 1.1.12. The Employer is _____
The Engineer	Sub-Clause 1.1.15. The Engineer is _____
Time for Completion	Sub-Clause 1.1.35. The Time for Completion is _____ days from the Commencement Date.
Contractor's Profit	Sub-Clause 1.6. The percentage to cover profit entitlement, where appropriate, is _____ %.
Ruling Language	Sub-Clause 5.1. The version in _____ language (ruling language) shall prevail.
Day to Day Communications	Sub-Clause 5.2 The language for day to day communications is _____
Programme to be Furnished	Sub-Clause 12.1. The Programme must be submitted in the form of _____ _____
Electricity Water, Gas and Other Services	Sub-Clause 14.3. Supplies on the Site are: a. Electricity: _____ _____ _____ b. Water: _____ _____ _____ c. Gas: _____ _____ _____ d. Other services: _____ _____ _____

**Employer's
Equipment**

Sub-Clause 14.4.

The following Employer's equipment is available for use by the Contractor under the Employer's operation: _____

Working Hours

Sub-Clause 18.3.

The normal working hours are _____

Delay in Completion

Sub-Clause 27.1.

Failure to meet the Time for Completion entitles the Employer to reduction in Contract Price as follows:

Percentage per day _____ %

Maximum _____ %

Prolonged Delay

Sub-Clause 27.2.

Maximum amount recoverable from the Contractor by the Employer: _____

Terms of Payment

Sub-Clause 33.1.

In addition to the provisions under Clause 33, the terms of payment shall be: _____

**Payment in Foreign
Currencies**

Sub-Clause 35.1.

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Rates of Exchange

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**Payment against
Provisional Sums**

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Maximum Liability

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Sub-Clause 51.2.

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**Language and Place
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Sub-Clause 51.3.

The language of arbitration is _____ language.

The place of arbitration is _____

PART I: GENERAL CONDITIONS

Definitions and Interpretations

- Definitions** **1.1** In the Contract (as hereinafter defined) the following words and expressions shall have the meanings hereby assigned to them:
- 1.1.1** "Commencement Date" means whichever is the latest of:
- i) the date specified in the Preamble as the date for commencement of the Works or the date when the Contractor receives;
 - ii) such payment in advance of the commencement of the Works as may be specified in the terms of payment, or
 - iii) notice of the issue of any import licence necessary for commencing performance of the Contract, or
 - iv) notice that any legal requirements necessary for the Contract to enter into force have been fulfilled, or
 - v) notice that any necessary financial or administrative requirements specified in Part II as conditions precedent to commencement have been fulfilled.
- 1.1.2** "Conditions" means the Preamble to and these Conditions of Contract, Parts I and II.
- 1.1.3** "Contract" means the agreement between the Employer and the Contractor for the execution of the Works incorporating the Conditions, Specification, Employer's Drawings and Contractor's Drawings, priced and completed Schedules, Tender, Letter of Acceptance and such further documents as may be expressly incorporated by the Letter of Acceptance.
- 1.1.4** "Contract Agreement" means the document recording the terms of the Contract between the Employer and the Contractor.
- 1.1.5** "Contract Price" means the sum stated in the Letter of Acceptance as payable to the Contractor for the execution of the Works.
- 1.1.6** "Contractor" means the person whose tender has been accepted by the Employer and the legal successors in title to the Contractor but not (except with the consent of the Employer) any assignee of the Contractor.
- 1.1.7** "Contractor's Drawings" means all drawings, samples, patterns, models and operation and maintenance manuals to be submitted by the Contractor in accordance with Clause 6.
- 1.1.8** "Contractor's Equipment" means all appliances or things of whatsoever nature required for the purposes of the Works but does not include Plant.
- 1.1.9** "Contractor's Risks" means the risk defined in Sub-Clause 37.3.
- 1.1.10** "Defects Liability Certificate" means the certificate to be issued by the Engineer to the Contractor in accordance with Sub-Clause 30.11.
- 1.1.11** "Defects Liability Period" means one year or the period stated in Part II following taking over, during which the Contractor is responsible for making good defects and damage in accordance with Clause 30.
- 1.1.12** "Employer" means the person named as such in the Preamble and the legal successors in title to the Employer but not (except with the consent of the Contractor) any assignee of the Employer.

- 1.1.13** "Employer's Drawings" means all the drawings and information provided by the Employer or the Engineer to the Contractor under the Contract.
- 1.1.14** "Employer's Risks" means those risks defined in Sub-Clause 37.2.
- 1.1.15** "Engineer" means the person appointed by the Employer to act as Engineer for the purposes of the Contract and designated as such in the Preamble.
- 1.1.16** "Engineer's Representative" means any representative of the Engineer appointed from time to time by the Engineer under Sub-Clause 2.2.
- 1.1.17** "Final Certificate of Payment", means the certificate to be issued by the Engineer to the Employer in accordance with Sub-Clause 33.10.
- 1.1.18** "Force Majeure" has the meaning assigned to it under Sub-Clause 44.1.
- 1.1.19** "Foreign Currency" means a currency of a country other than that in which Plant is to be installed.
- 1.1.20** "Gross Misconduct" means any act or omission of the Contractor in violation of the most elementary rules of diligence which a conscientious contractor in the same position and under the same circumstances would have followed.
- 1.1.21** "Letter of Acceptance" means the formal acceptance by the Employer of the Tender incorporating any adjustments or variations to the Tender agreed between the Employer and the Contractor.
- 1.1.22** "Performance Security" means the security to be provided by the Contractor in accordance with Sub-Clause 10.1. for the due performance of the Contract.
- 1.1.23** "Plant" means machinery, apparatus, materials and all things to be provided under the Contract for incorporation in the Works.
- 1.1.24** "Programme" means the Programme to be submitted by the Contractor in accordance with Sub-Clause 12.1. and any approved revisions thereto.
- 1.1.25** "Provisional Sum" means a sum, described as such for the execution of work or for the supply of goods or services, to be used in accordance with Sub-Clause 36.1.
- 1.1.26** "Risk Transfer Date" means the date when the risk of loss of or damage to the Works passes from the Contractor to the Employer in accordance with Sub-Clause 39.1.
- 1.1.27** "Schedule of Prices" means the completed and priced Schedule of Prices, or any part or individual schedule thereof, submitted by the Contractor with his Tender and forming a part of the Contract documents.
- 1.1.28** "Section" means a part of the Works specifically identified as such in the Contract.
- 1.1.29** "Site" means the place or places, provided or made available by the Employer where work is to be done by the Contractor or to which Plant is to be delivered, together with so much of the area surrounding the same as the Contractor shall with the consent of the Employer use in connection with the Works otherwise than merely for the purposes of access.
- 1.1.30** "Specification" means the specification of the Works included in the Contract and any modification thereof made under Clause 31.

- 1.1.31** "Subcontractor" means any person (other than the Contractor) named in the Contract for any part of the Works, or any person to whom any part of the Contract has been subcontracted with the consent of the Engineer, and the Subcontractor's legal successors in title but not any assignee of the Subcontractor.
- 1.1.32** "Taking-Over Certificate" means the certificate to be given by the Engineer to the Contractor in accordance with Clause 29.
- 1.1.33** "Tender" means the Contractor's priced offer to the Employer for the execution of the Works.
- 1.1.34** "Tests on Completion" means the tests specified in the Contract or otherwise agreed by the Engineer and the Contractor to be performed before the Works are taken over by the Employer.
- 1.1.35** "Time for Completion" means the time stated in the Preamble for completing the Works or any Section thereof and passing the Tests on Completion calculated from the Commencement Date unless extended in accordance with Clause 26.
- 1.1.36** "Variation Order" means any written order, identified as such, issued to the Contractor by the Engineer under Sub-Clause 31.1.
- 1.1.37** "Works" means all Plant to be provided and work to be done by the Contractor under the Contract.

Headings and Titles

- 1.2** The headings and titles in these Conditions shall not be deemed part thereof or be taken into consideration in the interpretation or construction of the Contract.

Interpretation

- 1.3** Words importing persons or parties shall include firms and corporations and any organisation having legal capacity.

Words importing the singular only also include the plural and vice versa where the context requires.

Written Communications

- 1.4** Wherever in the Contract provision is made for a communication to be "written" or "in writing" this means any hand-written, type-written or printed communication, including telex, cable and facsimile transmission.

Notices, Consents and Approvals

- 1.5** Wherever in the Contract provision is made for the giving of notice, consent or approval by any person, such consent or approval shall not be unreasonably withheld. Unless otherwise specified, such notice, consent or approval shall be in writing and the word "notify" shall be construed accordingly.

Costs, Overhead Charges and Profit

- 1.6** Whenever by these Conditions the Contractor is entitled to be paid cost, such cost shall be properly incurred and shall include any overhead charges properly allocable thereto but not profit unless so stated. Any profit entitlement shall be added to cost at the percentage stated in the Preamble.

Periods

- 1.7** In these Conditions "day" means calendar day and "year" means 365 days.

Engineer and Engineer's Representative

Engineer's Duties

- 2.1** The Engineer shall carry out the duties specified in the Contract.

If the Engineer is required, under the terms of his appointment by the Employer, to obtain the specific approval of the Employer before carrying out any of these duties, full particulars of such requirements shall be set out in Part II.

Except as expressly stated in the Contract the Engineer shall have no authority to relieve the Contractor of any of his obligations under the Contract.

Engineer's Representative	2.2	The Engineer's Representative shall be appointed by and be responsible to the Engineer and shall only carry out such duties and exercise such authority as may be delegated to him by the Engineer under Sub-Clause 2.3.
Engineer's Power to Delegate	2.3	The Engineer may from time to time delegate to the Engineer's Representative any of the duties vested in the Engineer and may at any time revoke such delegation. Any such delegation or revocation shall be in writing and shall not take effect until a copy thereof has been delivered to the Contractor and the Employer. Any decision, instruction or approval given by the Engineer's Representative to the Contractor in accordance with such delegation shall have the same effect though it had been given by the Engineer. However: (a) any failure of the Engineer's Representative to disapprove any Plant or workmanship shall not prejudice the right of the Engineer to disapprove such Plant or workmanship and to give instructions for the rectification thereof; (b) if the Contractor questions any decision or instruction of the Engineer's Representative he may refer the matter to the Engineer who shall confirm, reverse or vary such decision or instruction.
Engineer to Act Impartially	2.4	Wherever under the Contract the Engineer is required to exercise his discretion by: (a) giving his decision, opinion or consent, or (b) expressing his satisfaction or approval, or (c) determining value, or (d) otherwise taking action which may affect the rights and obligations of the Employer or the Contractor, he shall exercise such discretion impartially within the terms of the Contract and having regard to all the circumstances.
Engineer's Decisions and Instructions	2.5	The Contractor shall proceed with the decisions and instructions given by the Engineer in accordance with these Conditions.
Confirmation in Writing	2.6	The Contractor may require the Engineer to confirm in writing any decision or instruction of the Engineer which is not in writing. The Contractor shall not give notice to the Engineer of such requirement without undue delay. Such a decision or instruction shall not be effective until written confirmation thereof has been received by the Contractor.
Disputing Engineer's Decisions and Instructions	2.7	If the Contractor disputes or questions any decision or instruction under Clause 2.5 or a written confirmation under Clause 2.6, he shall give notice to the Engineer within 28 days after receipt thereof, giving his reasons. The Engineer shall within a further period of 28 days by notice to the Contractor and the Employer with reasons, confirm, reverse or vary such decision or instruction. If either party disagrees with the action taken by the Engineer, or if the Engineer fails to reply to the Contractor's notice within the stipulated 28 days, the matter cannot be settled amicably that party shall be at liberty, subject to Sub-Clause 50.1, to refer the matter to arbitration in accordance with the Contract.
Replacement of Engineer	2.8	The Employer shall not appoint any person to act in replacement of the Engineer without the consent of the Contractor.

Assignment and Subcontracting

Assignment **3.1** The Contractor shall not assign the Contract or any part of his obligations under the Contract. A charge in favour of the Contractor's bankers of any monies due under the Contract shall not be considered an assignment.

Subcontracting **4.1** The Contractor shall not subcontract the whole of the Works.
Except where otherwise provided by the Contract the Contractor shall not subcontract any part of the Works without the prior consent of the Engineer.
The Contractor shall however, not require such consent for purchases of materials or to place contracts for minor details or for any part of the Works of which the manufacturer or supplier is named in the Contract.
The Contractor shall be responsible for the acts, defaults and neglects of any Subcontractor, his agents or employees as fully as if they were the acts, defaults or neglects of the Contractor, his agents or employees.

Contract Documents

Ruling Language **5.1** Where versions of the Contract are prepared in different languages, the version which is to prevail shall be specified in the Preamble. The language of such version is referred to as the ruling language.

Day to Day Communications **5.2** The language for day to day communications is stated in the Preamble.

Priority of Contract Documents **5.3** Unless otherwise provided in the Contract the priority of the Contract documents shall be as follows:
1. The Letter of Acceptance
2. The Preamble
3. The Conditions of Contract, Part II
4. The Conditions of Contract, Part I
5. Any other documents forming part of the Contract.

Documents Mutually Explanatory **5.4** Subject to Sub-Clause 5.3. the Contract documents shall be taken as mutually explanatory. Any ambiguities or discrepancies shall be resolved by the Engineer, who shall then instruct the Contractor thereon.

If the Contractor considers that compliance with such instructions will result in any cost which the Contractor could not reasonably have anticipated, he shall forthwith inform the Engineer with full supporting details. The Engineer shall then, if he approves, certify such costs as may be reasonable, together with profit where appropriate, which shall be added to the Contract Price.

If on the other hand compliance with such instructions results in lower costs for the Contractor than he had reason to anticipate, the Engineer shall certify a deduction from the Contract Price allowing for profit where appropriate.

Contractor's Drawings **6.1** The Contractor shall submit to the Engineer for approval:
(a) within the time given in the Contract or in the Programme such drawings, samples, models or information as may be called for therein, and in the numbers therein required, and
(b) during the progress of the Works, such drawings of the general arrangement and details of the Works as specified in the Contract or as the Engineer may require.

The Engineer shall signify his approval or disapproval thereof. If he fails to do so within the time given in the Contract or the Programme or if no time limit is specified, within 28 days of receipt, they shall be deemed to be approved.

Approved drawings, samples and models shall be signed or otherwise identified by the Engineer.

The Contractor shall supply additional copies of approved drawings in the form and numbers stated in the Contract.

Consequences of Disapproval of Contractor's Drawings	6.2	Any Contractor's Drawings which the Engineer disapproves, shall be forthwith modified to meet the requirements of the Engineer and shall be re-submitted.
Approved Contractor's Drawings	6.3	Approved Contractor's Drawings shall not be departed from except as provided in Clause 31.
Inspection of Contractor's Drawings	6.4	The Engineer shall have the right at all reasonable times to inspect, at the Contractor's premises, all Contractor's Drawings of any part of the Works.
Erection Information	6.5	The Contractor shall provide, within the times stated in the Contract or in the Programme, drawings showing how the Plant is to be affixed and any other information required for: (a) preparing suitable foundations or other means of support, and (b) providing suitable access on the Site for the Plant and any necessary equipment to the place where the Plant is to be erected, and (c) making necessary connections to the Plant.
Operation and Maintenance Manuals	6.6	Before the Works are taken over in accordance with Clause 29 the Contractor shall supply operation and maintenance manuals together with drawings of the Works as built. These shall be in such detail as will enable the Employer to operate, maintain, adjust and repair all parts of the Works. Unless otherwise stated in Part II the manuals and drawings shall be in the ruling language, and in such form and numbers as stated in the Contract. Unless otherwise agreed, the Works shall not be considered to be completed for the purposes of taking over until such manuals and drawings have been supplied to the Employer.
Employer's Use of Contractor's Drawings	6.7	Contractor's Drawings may be used by the Employer for no other purpose than completing, operating, maintaining, adjusting and repairing the Works.
Contractor's Use of Employer's Drawings	6.8	The Employer's Drawings, Specification and other information submitted by the Employer or the Engineer to the Contractor shall remain the property of the Employer. They shall not, without the consent of the Employer, be used, copied or communicated to a third party by the Contractor unless necessary for the purposes of the Contract.
Manufacturing Drawings	6.9	Unless otherwise specified in Part II the Contractor shall not be required to disclose to the Employer or the Engineer the Contractor's confidential manufacturing drawings, designs, know-how or manufacturing practices or processes or operations.
Errors in Contractor's Drawings	7.1	The Contractor shall be responsible for any errors or omissions in the Contractor's Drawings unless they are due to incorrect Employer's Drawings or other written information supplied by the Employer or the Engineer. Approval by the Engineer of the Contractor's Drawings shall not relieve the Contractor from any responsibility under this Sub-Clause.

The Contractor shall bear any costs he may incur as a result of delay in providing Contractor's Drawings and other information or as a result of errors or omissions therein, for which the Contractor is responsible.

The Contractor shall at his own cost carry out any alterations or remedial work necessitated by such errors or omissions for which he is responsible and modify the Contractor's Drawings and such other information accordingly.

The performance of his obligations under this Clause shall be in full satisfaction of the Contractor's liability under this Clause but shall not relieve him of his liability under Sub-Clause 27.1.

Errors by Employer or Engineer	7.2	The Employer shall be responsible for the Employer's Drawings and for other written information supplied by the Employer or the Engineer and for the details of special work specified by either of them. If such Employer's Drawings, information or details are incorrect and necessitate alterations of the work, the Employer shall pay the Contractor the cost of the alterations together with profit as certified by the Engineer.
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Obligations of the Contractor

General Obligations	8.1	The Contractor shall, in accordance with the Contract, with due care and diligence, design, manufacture, deliver to Site, erect, test and commission the Plant and carry out the Works within the Time for Completion. The Contractor shall also provide all necessary Contractor's Equipment, superintendence, labour and, except as stated in Part II, all necessary facilities therefor.
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Setting Out	8.2	The Contractor shall set out the Works in relation to original points, lines and levels of reference given by the Engineer in writing and provide all necessary instruments, appliances and labour for such purposes.
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If, at any time during the execution of the Works, any error appears in the positions, levels, dimensions or alignment of the Works, the Contractor shall rectify the error.

The Contractor shall bear the cost of rectifying the error, unless the error results from incorrect information supplied in writing by the Employer, the Engineer or from default by another contractor, in which case the cost together with profit shall be borne by the Employer.

The checking of any setting-out by the Engineer shall not relieve the Contractor of his responsibility for the accuracy thereof.

Contract Agreement	9.1	The Contractor shall, if called upon so to do, execute a Contract Agreement recording all the terms of the Contract, to be prepared by and completed at the cost of the Employer in the form annexed hereto.
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Performance Security	10.1	If Part II requires the Contractor to obtain a Performance Security, he shall obtain the same in the sum required, within 28 days after the receipt of the Letter of Acceptance. The Performance Security shall be provided by a person and in a form approved by the Employer. The cost of complying with the requirements of this Clause shall be borne by the Contractor.
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Period of Validity	10.2	The Performance Security shall be valid until the Contractor has executed, completed and remedied defects in the Works in accordance with the Contract. No claim shall be made against the Performance Security after the issue of the Defects Liability Certificate and the Performance Security shall be returned to the Contractor within 14 days of the issue of the Defects Liability Certificate.
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Claims under Performance Security	10.3	Whether or not the Performance Security is stated by its terms to be payable on the demand of the Employer the Employer shall not make a claim under the Performance Security unless one of the following conditions is satisfied:
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(a) the Contractor is in breach of the Contract and fails to remedy the breach within 42 days after receiving written notice from the Employer requiring him so to do. The notice shall state the intention to claim under the Performance Security, the amount claimed and the breach relied upon, or

(b) the Employer and the Contractor have agreed in writing that the amount demanded is payable to the Employer, and the amount has not been paid within 42 days thereafter, or

(c) the Employer has obtained an award in arbitration under Clause 50 and the amount awarded has not been paid within 42 days after the award, or

(d) the Contractor has gone into liquidation or is bankrupt.

In every case the Employer shall, when making the claim, send a copy to the Contractor.

Site Data 11.1 The Tender shall be deemed to have been based on such data on climatic, hydrological and general conditions on the Site and for the operation of the Works as the Employer or the Engineer has made available to the Contractor for the purposes of the Tender. The Contractor shall be responsible for his own interpretation of such data.

Sufficiency of Contract Price 11.2 The Contractor shall be deemed to have satisfied himself on and taken account of in his Tender:

(a) all the conditions and circumstances affecting the Contract Price,

(b) the possibility of carrying out the Works as described in the Contract,

(c) the general circumstances at the Site (if access has been made available to him) and

(d) the general labour position at the Site.

The Contractor shall not be responsible for the accuracy of information given in writing by the Employer or the Engineer but shall be responsible for his interpretation of information received from whatever source.

Physical Obstructions and Conditions 11.3 If during the execution of the Works on Site the Contractor encounters physical obstructions or conditions of the kind stipulated in Sub-Clause 26.1. c) the Contractor shall be entitled to recover the additional cost incurred in consequence.

The Engineer shall certify and there shall be added to the Contract Price the additional cost of:

(a) complying with any instruction which the Engineer, after due consultation with the Employer and the Contractor, issues to the Contractor in connection therewith, and

(b) any necessary measures which the Contractor may take in the absence of specific instructions from the Engineer.

Programme to be Furnished 12.1 The Contractor shall submit to the Engineer for his approval the Programme which shall contain the following:

(a) the order in which the Contractor proposes to carry out the Works (including design, manufacture, delivery to Site, erection, testing and commissioning),

(b) the times when submission and approval of the Contractor's Drawings are required,

(c) the times by which the Contractor requires the Employer:

- (i) to furnish any Employer's Drawings,
- (ii) to provide access to the Site,
- (iii) to have completed the necessary civil engineering work (including foundations for the Plant) and
- (iv) to have obtained any import licences, consents, wayleaves and approvals necessary for the purpose of the Works.

The Contractor shall submit the Programme in the form stated in the Preamble within 28 days after the Commencement Date.

The approval by the Engineer of the Programme shall not relieve the Contractor or the Employer from any obligation under the Contract.

Alteration to Programme	12.2	No material alteration to the Programme shall be made without the approval of the Engineer.
Revision of Programme	12.3	If the progress of the Works does not conform to the Programme, the Engineer may instruct the Contractor to revise the Programme. If such modifications are required for reasons for which the Contractor is not responsible, the cost of preparing the revised Programme shall be certified by the Engineer and added to the Contract Price.
Contractor's Representative	13.1	The Contractor shall employ one or more competent representatives to superintend the carrying out of the Works on Site. They shall be fluent in the language for day to day communications. Their names shall be communicated in writing to the Engineer before work on Site begins. Any instruction or notice which the Engineer gives to the Contractor's representatives shall be deemed to have been given to the Contractor.
Objection to Contractor's Employees	13.2	The Contractor shall, upon the Engineer's written instruction, remove from the Works any person employed by him in the execution of the Works, who misconducts himself or is incompetent or negligent.
Contractor's Equipment	14.1	Except to the extent specified in Part II, the Contractor shall provide all Contractor's Equipment necessary to complete the Works. All Contractor's Equipment shall, when brought on to the Site, be deemed to be exclusively intended for the execution of the Works. The Contractor shall not remove from the Site any such equipment, except: (a) when it is no longer required for the completion of the Works, or (b) when the Engineer has given his consent.
Safety Precautions	14.2	The Contractor shall observe all applicable regulations regarding safety on the Site. Unless otherwise agreed, the Contractor shall, from the commencement of work on Site until taking over provide: (a) fencing, lighting, guarding and watching of the Works, and (b) temporary roadways, footways, guards and fences which may be necessary for the accommodation and protection of owners and occupiers of adjacent property, the public and others.
Electricity, Water and Gas	14.3	The Contractor shall be entitled to use for the purposes of the Works such supplies of electricity, water, gas and other services as may be available on the Site and of which details are given in the Preamble. The Contractor shall pay the Employer a fair price for such use. The Contractor shall at his own cost provide any apparatus necessary for such use.

Employer's Equipment	14.4	The Employer shall, if the Contractor so requests for the execution of the Works operate any available equipment of which details are given in the Preamble. The Contractor shall pay the Employer a fair price for such use. The Employer shall during such operation retain control of and be responsible for the safe working of the equipment.
Clearance of Site	14.5	The Contractor shall from time to time during the progress of the Works clear away and remove all surplus materials and rubbish. On completion of the Works the Contractor shall remove all Contractor's Equipment and leave the whole of the Site and the Works clean and in a workmanlike condition, to the satisfaction of the Engineer.
Opportunities for Other Contractors	14.6	The Contractor shall, in accordance with the Engineer's instructions, afford to other contractors engaged by the Employer to work on the Site and persons lawfully upon the Site all reasonable opportunities for carrying out their work provided that the same shall not obstruct or disturb the progress of the Works. The Contractor shall also afford such opportunities to the employees of the Employer. If the Contractor, on the written request of the Engineer, makes available any Contractor's Equipment or provides any other service, the Employer shall pay the Contractor accordingly. The amount to be paid shall be certified by the Engineer and added to the Contract Price.
Authority for Access	14.7	No persons other than the employees of the Contractor and his Subcontractors shall be allowed on the Site except with the consent of the Engineer. Facilities to inspect the Works shall at all times be afforded by the Contractor to the Engineer and his representatives, the Employer's representatives, authorities and officials.
Information for Import Permits and Licences	14.8	The Contractor shall submit to the Employer in good time such details of all Plant and Contractor's Equipment as will enable the Employer to obtain all necessary import permits or licences.
Compliance with Statutes, Regulations	15.1	The Contractor shall, in all matters arising in the performance of the Contract comply in all respects with, give all notices and pay all fees required by the provisions of any national or state statute, ordinance or other law or any regulation or bye-law of any duly constituted authority.
Compliance with Laws	15.2	The Contractor shall comply with the laws of the country of manufacture concerning the manufacture of the Plant, and the laws of the country where the Plant is to be erected so far as such laws concern the manufacture, erection and operation of the Works.
Patent Rights	16.1	The Contractor shall indemnify the Employer against all claims of infringement of any patent, registered design, copyright, trade mark or trade name or other intellectual property right provided that all of following conditions are satisfied: (a) The claim or proceedings arise out of the design, construction, manufacture or use of the Works or any Plant supplied by the Contractor. (b) The right was protected at the date of the Contract in the Contractor's country or the country in which the Plant is to be manufactured or erected. (c) The infringement or allegation of infringement was not caused by any use of the Works otherwise than for the purpose indicated by or reasonably to be inferred from the Specification. (d) The infringement or allegation of infringement was not caused by the use of any Plant in association or combination with any plant not supplied by the Contractor, unless such association or combination was disclosed to the Contractor prior to the date of the Tender.

(c) The infringement or allegation of infringement was not caused by the Contractor following the design or instructions of the Employer or the Engineer.

**Claims in respect of
Patent Rights**

16.2 The Contractor shall be promptly notified of any claim under this Clause made against the Employer. The Contractor may at his own cost conduct negotiations for the settlement of such claim, and any litigation that may arise therefrom.

The Employer shall not make any admission which might be prejudicial to the Contractor unless the Contractor has failed to take over the conduct of the negotiations or litigation within a reasonable time after having been so requested.

The Contractor may not, however, conduct such negotiations or litigation before he has given the Employer such reasonable security as the Employer may require. The security shall be for an amount which is an assessment of the compensation, damages, expenses and costs for which the Employer may become liable and which are the subject of the indemnity under Sub-Clause 16.1.

The Employer shall, at the request of the Contractor, provide all available assistance for the purpose of contesting any such claim or action, and shall be repaid all reasonable costs incurred in so doing.

**Employer's
Warranty for
Patent Rights**

16.3 If any matter for which the Contractor is not liable to indemnify the Employer under Sub-Clause 16.1 causes the infringement or allegation of infringement by the Contractor of any patent, registered design, trade mark, copyright or other intellectual property right, the Employer shall indemnify the Contractor against all claims, damages, expenses and costs which the Contractor may incur in relation thereto. The provisions of Sub-Clause 16.2 shall apply mutatis mutandis.

Obligations of the Employer

**Access to
and Possession
of the Site**

17.1 The Employer shall in reasonable time grant the Contractor access to and possession of the Site, which may, however, not be exclusive to the Contractor.

The Employer shall to the extent stated in the Specification provide means of access for the delivery of all Plant and Contractor's Equipment to the Site.

**Assistance with
Local Regulations**

17.2 The Employer shall assist the Contractor in ascertaining the nature and extent of any laws, regulations, orders or bye-laws, and customs in the country where the Plant is to be erected, which may affect the Contractor in the performance of his obligations under the Contract. The Employer shall if so requested procure for the Contractor copies thereof and information relating thereto at the Contractor's cost.

Civil Works on Site

17.3 Any building, structure, foundation or means of access on the Site to be provided by the Employer shall be in a condition suitable for the reception, movement, installation and maintenance of the Works within the time or times indicated in the Programme.

**Consents and
Wayleaves**

17.4 The Employer shall in due time obtain or grant all consents including permits-to-work, wayleaves and approvals required for the Works.

**Import Permits
and Licences**

17.5 The Employer shall obtain all import permits or licences required for any part of the Plant or Works in reasonable time having regard to the time for delivery of the Plant and completion of the Works.

Labour

**Engagement
of Labour**

18.1 The Contractor shall, unless otherwise provided in the Contract, make his own arrangements for the engagement of all labour and for their payment, housing, feeding and transport.

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| Returns of Labour | 18.2 | The Contractor shall submit detailed returns showing the supervisory staff and the numbers of the several classes of labour from time to time employed by the Contractor and Subcontractors on the Site. The returns shall be submitted in such form and at such intervals as the Engineer may prescribe. |
| Working Hours | 18.3 | <p>On the Site the Contractor shall observe the normal working hours stated in the Preamble. The Employer shall allow the Contractor to carry out work on the Site continuously during such working hours.</p> <p>The Engineer may after consulting the Employer and the Contractor, direct that work shall be done at other times. The extra cost, together with profit, shall be added to the Contract Price unless it has become necessary for the completion of the Works within the Time for Completion, and this is due to default of the Contractor.</p> |
| Restriction on Working Hours | 18.4 | <p>No work shall be carried out on the Site outside normal working hours or on the locally recognised days of rest, unless:</p> <p>(a) the Contract so provides, or</p> <p>(b) the work is unavoidable or necessary for the saving of life or property or for the safety of the Works, in which case the Contractor shall immediately advise the Engineer, or</p> <p>(c) the Engineer gives his consent.</p> |

Workmanship and Materials

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| Manner of Execution | 19.1 | <p>All Plant to be supplied shall be manufactured and all work to be done shall be executed in the manner set out in the Contract.</p> <p>Where the manner of manufacture and execution is not set out in the Contract the work shall be executed in a proper and workmanlike manner in accordance with recognised good practice.</p> |
| Covering up Work | 19.2 | <p>The Contractor shall give the Engineer full opportunity to examine, measure and test any work on Site which is about to be covered up or put out of view.</p> <p>The Contractor shall give due notice to the Engineer whenever such work is ready for examination, measurement or testing.</p> <p>The Engineer shall then, unless he notifies the Contractor that he considers unnecessary, without unreasonable delay carry out the examination, measurement or testing.</p> |
| Uncovering Work | 19.3 | <p>If so instructed by the Engineer, the Contractor shall expose any parts of the Works. The Contractor shall reinstate and make good such parts to the Engineer's satisfaction.</p> <p>If any parts of the Works have been covered up or put out of view by the Contractor after complying with Sub-Clause 19.2 and are found to be in accordance with the Contract the cost incurred by the Contractor in complying with the Engineer's instructions including profit shall be certified by the Engineer and added to the Contract Price.</p> |
| Independent Inspection | 20.1 | <p>The Engineer may, if so provided in the Contract or with the Contractor's consent, delegate inspection and testing of Plant to an independent inspector. Any such delegation shall be effected in the manner required by Sub-Clause 2.1 and for this purpose such independent inspector shall be considered as the Engineer's Representative. Notice of such appointment (being not less than 14 days) shall be given by the Engineer to the Contractor.</p> |

Inspection and Testing During Manufacture	20.2	The Engineer shall be entitled during manufacture to inspect, examine and test the materials and workmanship and check the progress of manufacture of all Plant to be supplied under the Contract. This shall take place on the Contractor's premises during working hours. If Plant is being manufactured on other premises, the Contractor shall obtain permission for the Engineer to carry out such inspection, examination and testing on those premises. No such inspection, examination or testing shall release the Contractor from any obligation under the Contract.
Dates for Inspection and Testing	20.3	The Contractor shall agree with the Engineer the time and place for the testing of any Plant as provided in the Contract. The Engineer shall give the Contractor 24 hours notice of his intention to attend the tests. If the Engineer does not attend on the date agreed, the Contractor may, unless the Engineer instructs the Contractor not to do so, proceed with the tests, which shall be deemed to have been made in the Engineer's presence. The Contractor shall forthwith forward to the Engineer duly certified copies of the test results. If the Engineer has not attended the test, he shall accept the validity of the test readings.
Facilities for Testing	20.4	Where the Contract provides for tests on the premises of the Contractor or of any Sub-contractor, the Contractor shall provide such assistance, labour, materials, electricity, fuel, stores, apparatus and instruments as may be necessary to carry out the tests efficiently.
Certificate of Testing	20.5	When Plant has passed the tests referred to in this Clause, the Engineer shall furnish to the Contractor a certificate or endorse the Contractor's test certificate to that effect.
Rejection	21.1	If, as a result of the inspection, examination or testing referred to in Clause 20, the Engineer decides that any Plant is defective or otherwise not in accordance with the Contract, he may reject such Plant and shall notify the Contractor thereof immediately. The notice shall state the Engineer's objections with reasons. The Engineer shall not reject any Plant for minor defects which do not affect the commercial operation of such Plant. The Contractor shall then with all speed make good the defect or ensure that any rejected Plant complies with the Contract. If the Engineer requires such Plant to be retested, the tests shall be repeated under the same terms and conditions. All costs incurred by the Employer by the repetition of the tests shall be deducted from the Contract Price.
Permission to Deliver	22.1	The Contractor shall apply in writing to the Engineer for permission to deliver any Plant or Contractor's Equipment to the Site. No Plant or Contractor's Equipment may be delivered to the Site without the Engineer's written permission. The Contractor shall be responsible for the reception on Site of the Plant and Contractor's Equipment.

Suspension of Works, Delivery or Erection

Order to Suspend	23.1	The Engineer may at any time instruct the Contractor to: (a) suspend progress of the Works, or (b) suspend delivery of Plant or Contractor's Equipment which is ready for delivery to the Site at the time for delivery specified in the Programme, or if no time is specified, at the time appropriate for it to be delivered, or
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(c) suspend the erection of Plant which has been delivered to the Site.

When the Contractor is prevented from delivering or erecting Plant in accordance with the Programme the Engineer shall be deemed to have instructed a suspension except when such prevention is caused by the Contractor's default.

The Contractor shall during suspension protect and secure the Works or Plant affected at the Contractor's works or elsewhere or at the Site, as the case may be, against any deterioration, loss or damage.

Cost of Suspension **24.1** The additional cost incurred by the Contractor in protecting, securing and insuring the Works or Plant and in following the Engineer's instructions under Sub-Clause 23.1 and in resumption of the work, shall be added to the Contract Price.

The Contractor shall not be entitled to be paid any additional costs if such suspension is necessary by reason of a default on the part of the Contractor.

The Contractor shall not be entitled to additional costs unless he notifies the Engineer of his intention to make such claim, within 28 days after receipt of the order to suspend progress or delivery or of the date of deemed suspension under Sub-Clause 23.1.

Payment in Event of Suspension **24.2** The Contractor shall be entitled to payment for Plant which has not been delivered to Site if the work on Plant or delivery of Plant has been suspended for more than 28 days. After 28 days of suspension, the Contractor shall be entitled to payment of the value of such Plant as at the date of suspension.

A certificate of payment shall be issued on condition that:

(a) the Contractor has marked the Plant as the Employer's property in accordance with the Engineer's instructions, and

(b) the suspension is not due to the Contractor's default.

Prolonged Suspension **24.3** If suspension under Clause 23.1 has continued for more than 84 days, and the suspension is not due to the Contractor's default, the Contractor may by notice to the Engineer require permission to proceed within 28 days.

If permission is not granted within that time, the Contractor may treat the suspension as an omission under Clause 31 of the Section it affects, or if the suspension affects the whole of the Works, terminate the Contract and the provisions of Clause 46 shall apply.

Resumption of Work **24.4** If the Contractor chooses not to treat prolonged suspension as an omission or termination under Sub-Clause 24.3, the Employer shall upon the request of the Contractor, take over the responsibility for protection, storage, security and insurance of the suspended Works and the risk of loss or damage thereto shall thereupon pass to the Employer.

After receipt of permission or an order to proceed, the Contractor shall, after due notice to the Engineer, examine the Works and the Plant affected by the suspension. The Contractor shall make good any deterioration or defect in or loss of the Works or Plant that may have occurred during the suspension. Cost properly incurred by the Contractor which would not have been incurred but for the suspension shall be added to the Contract Price together with profit.

The Contractor shall not be entitled to payment for costs incurred in making good any deterioration, defect or loss caused by faulty workmanship or materials or by the Contractor's failure to take the measures specified in Sub-Clause 23.1.

If the Employer has taken over risk and responsibility for the suspended Works under this Sub-Clause, risk and responsibility shall revert to the Contractor 14 days after receipt of the permission or order to proceed.

Completion

Time for Completion	25.1	The Works shall be completed and shall have passed the Tests on Completion within the Time for Completion.
Extension of Time for Completion	26.1	The Contractor may claim an extension of the Time for Completion if he is or will be delayed in completing the Works by any of the following causes: (a) extra or additional work ordered in writing under Clause 31, (b) exceptional adverse weather conditions, (c) physical obstructions or conditions which could not reasonably have been foreseen by the Contractor, (d) Employer's or Engineer's instructions, otherwise than by reason of the Contractor's default, (e) the failure of the Employer to fulfil any of his obligations under the Contract, (f) delay by any other contractor engaged by the Employer, (g) any suspension of the Works under Clause 23, except when due to the Contractor's default, (h) any industrial dispute, (i) the Employer's Risks. (j) Force Majeure. The Contractor shall give to the Engineer notice of his intention to make a claim for an extension of time within 14 days of the circumstances for such a claim becoming known to the Contractor. The notice shall be followed as soon as possible by the claim with full supporting details. The Engineer shall, after due consultation with the Employer and the Contractor, grant the Contractor from time to time, either prospectively or retrospectively, such extension of Time for Completion as may be justified. The Engineer shall notify the Employer and the Contractor accordingly. The Contractor shall be entitled to such extension whether the delay occurs before or after the Time for Completion.
Delays by Subcontractors	26.2	The Contractor shall be entitled to claim an extension of time if delay on the part of a Subcontractor is due to a cause mentioned in Clause 26.1, and such delay prevents the Contractor from meeting the Time for Completion.
Earlier Completion	26.3	The Employer may require completion of the Works or part thereof earlier than the Time for Completion, on the following conditions: (a) The Employer and the Contractor shall first agree the extra sum to be paid for each day by which the Contractor completes the Works or part thereof earlier than the Time for Completion. (b) The Contractor shall not become liable under Sub-Clause 27.1 for any failure to complete the Works or the part thereof by the earlier time.
Delay in Completion	27.1	If the Contractor fails to complete the Works within the Time for Completion, the Employer shall be entitled to a reduction in the Contract Price unless it can be reasonably concluded from the circumstances that the Employer will suffer no loss. The Employer shall within a reasonable time give the Contractor notice of his intention to claim a reduction.

The reduction shall be the percentage per day stated in the Preamble of that part of the Contract Price which is attributable to such part of the Works as cannot in consequence of the failure be put to the intended use. The reduction shall be computed for each day between the Time for Completion and the actual date of completion.

The reduction shall in no case exceed the maximum percentage of the Contract Price of such part stated in the Preamble.

Except as provided in Sub-Clause 27.2, such reduction shall be to the exclusion of any other remedy of the Employer in respect of the Contractor's failure to complete within the Time for Completion.

- Prolonged Delay 27.2** If the Employer has become entitled to the maximum reduction under Clause 27.1 for any part of the Works, he may by notice require the Contractor to complete. Such notice shall fix a final time for completion which shall be reasonable.
- If the Contractor fails to complete within such time, and this is not due to a cause for which the Employer or some other contractor employed by him is responsible, the Employer may by further notice to the Contractor either:
- (a) require the Contractor to complete, or
 - (b) may himself complete at the Contractor's cost provided that he does so in a reasonable manner, or
 - (c) terminate the Contract.
- If the Employer terminates the Contract, he shall be entitled to recover from the Contractor any loss he has suffered up to the maximum amount stated in the Preamble. If no maximum amount is stated, the Employer shall not be entitled to recover more than that part of the Contract Price which is attributable to that part of the Works which cannot by reason of the Contractor's failure be put to the intended use.
- The Employer shall give credit for the value of any part of the Works which he retains.

Tests on Completion

- Notice of Tests 28.1** The Contractor shall give to the Engineer 21 day's notice of the date after which he will be ready to make the Tests on Completion (the Tests). Unless otherwise agreed, the Tests shall take place within 14 days after the said date on such day or days as the Engineer shall notify the Contractor.
- Time for Tests 28.2** If the Engineer fails to appoint a time after having been asked to do so, or does not attend at the time and place appointed, the Contractor shall be entitled to proceed with the Tests in his absence. The Tests shall then be deemed to have been made in the presence of the Engineer and the results of the Tests shall be accepted as accurate.
- Delayed Tests 28.3** If the Tests are being unduly delayed by the Contractor the Engineer may by notice require the Contractor to make the Tests within 21 days after the receipt of such notice. The Contractor shall make the Tests on such days within that period as the Contractor may fix and of which he shall give notice to the Engineer.
- If the Contractor fails to make the Tests within 21 days the Engineer may himself proceed with the Tests. All Tests so made by the Engineer shall be at the risk and cost of the Contractor and the cost thereof shall be deducted from the Contract Price. The tests shall then be deemed to have been made in the presence of the Contractor and the results of the Tests shall be accepted as accurate.

Facilities for Tests on Completion	28.4	Except where otherwise specified, the Employer shall provide free of charge such labour, materials, electricity, fuel, water, stores, apparatus and feedstock as may be reasonably required by the Contractor to carry out the Tests.
Retesting	28.5	If the Works or any Section fails to pass the Tests, the Engineer or the Contractor may require such Tests to be repeated on the same terms and conditions. All costs to which the Employer may be put by the repetition of the Tests under this Sub-Clause or under Sub-Clause 30.7 shall be deducted from the Contract Price.
Disagreement as to Result of Tests	28.6	If the Engineer and the Contractor disagree on the interpretation of the Test results, each shall give a statement of his views to the other within 14 days after such disagreement arises. The statement shall be accompanied by all relevant evidence.
Consequences of Failure to Pass Tests on Completion	28.7	If the Works or any Section fails to pass the Tests on the repetition thereof under Sub-Clause 28.5, the Engineer, after due consultation with the Employer and the Contractor, shall be entitled to: (a) order one further repetition of the Tests under the conditions of Sub-Clause 28.5, or (b) reject the Works or Section in which event the Employer shall have the same remedies against the Contractor as are provided under Sub-Clause 30.5 (c), or (c) issue a Taking-Over Certificate, if the Employer so wishes, notwithstanding that the Works are not complete. The Contract Price shall then be reduced by such amount as may be agreed by the Employer and the Contractor or, failing agreement, as may be determined by arbitration.
Use by the Employer	28.8	In considering the results of Tests carried out under Sub-Clauses 29.3, 29.4 and 30.7 the Engineer shall make allowances for the effect of any use of the Works by the Employer on the performance or other characteristics of the Works.
Test Certificate	28.9	As soon as the Works or any Section thereof has passed the Tests, the Engineer shall issue a Certificate to the Contractor and the Employer to that effect.

Taking Over

Taking Over	29.1	The Works shall be taken over by the Employer when they have been completed in accordance with the Contract, except in minor respects that do not affect the use of the Works for their intended purpose, have passed the Tests on Completion and a Taking-Over Certificate has been issued or deemed to have been issued in accordance with Sub-Clause 29.2.
Taking-Over Certificate	29.2	The Contractor may apply by notice to the Engineer for a Taking-Over Certificate not earlier than 14 days before the Works will in the Contractor's opinion be complete and ready for taking over under Sub-Clause 29.1. The Engineer shall within 28 days after the receipt of the Contractor's application either: (a) issue the Taking-Over Certificate to the Contractor with a copy to the Employer stating the date on which the Works were complete and ready for taking over, or (b) reject the application giving his reasons and specifying the work required to be done by the Contractor to enable the Taking-Over Certificate to be issued. If the Engineer fails either to issue the Taking-Over Certificate or to reject the Contractor's application within the period of 28 days he shall be deemed to have issued the Taking-Over Certificate on the last day of that period. If the Works are divided by the Contract into Sections the Contractor shall be entitled to apply for separate Taking-Over Certificates for each such Section.

**Use before
Taking Over**

29.3 The Employer shall not use any part of the Works unless a Taking-Over Certificate has been issued in respect thereof.

If nevertheless the Employer uses any part of the Works, that part which is used shall be deemed to have been taken over at the date of such use. The Engineer shall on request of the Contractor issue a Taking-Over Certificate accordingly. If the Employer uses any part of the Works before taking over the Contractor shall be given the earliest opportunity of taking such steps as may be necessary to carry out the Tests on Completion.

The provisions of Sub-Clause 27.1 shall not apply to any part of the Works which being so used by the Employer. Clause 30 shall apply as if the part had been taken over on the date it was taken into use.

**Interference with
Tests on Completion**

29.4 If the Contractor is prevented from carrying out the Tests on Completion by a cause for which the Employer or the Engineer or other contractors employed by the Employer are responsible, the Employer shall be deemed to have taken over the Works on the date when the Tests on Completion would have been completed but for such prevention. The Engineer shall issue a Taking-Over Certificate accordingly.

The Works shall not be deemed to have been taken over if they are not substantially in accordance with the Contract.

If the Works are taken over under this Clause the Contractor shall nevertheless carry out the Tests on Completion during the Defects Liability Period. The Engineer shall require the Tests on Completion to be carried out by 14 days notice and in accordance with the relevant provisions of Clause 28.

Any additional costs to which the Contractor may be put in making the Tests on Completion during the Defects Liability Period, shall be added to the Contract Price.

Defects after Taking Over

**Defects Liability
Period**

30.1 Where any part of the Works is taken over separately from the Works the Defects Liability Period for that part shall commence on the date it was taken over.

**Making Good
Defects**

30.2 The Contractor shall, subject to Sub-Clause 30.9, be responsible for making good any defect in or damage to any part of the Works which may appear or occur during the Defects Liability Period and which arises from, either:

(a) any defective materials, workmanship or design, or

(b) any act or omission of the Contractor during the Defects Liability Period.

The Contractor shall make good the defect or damage as soon as practicable and at his own cost.

Notice of Defects

30.3 If any such defect appears or damage occurs, the Employer or the Engineer shall forthwith notify the Contractor thereof.

**Extension of Defects
Liability Period**

30.4 The provisions of this Clause shall apply to all replacements or renewals carried out by the Contractor as if the replacements and renewals had been taken over on the date they were completed.

The Defects Liability Period for the Works shall be extended by a period equal to the period during which the Works cannot be used by reason of a defect or damage. If only part of the Works is affected the Defects Liability Period shall be extended only for that part.

In neither case shall the Defects Liability Period be extended by more than one year.

When erection or delivery of Plant has been suspended under Sub-Clause 23.1, the Contractor's obligations under this Clause shall not apply to any defects occurring more than three years after it would have been delivered but for the suspension or such period as may be stated in Part II.

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| Failure to Remedy Defects | 30.5 | <p>If the Contractor fails to remedy a defect or damage within a reasonable time, the Employer may fix a final time for remedying the defect or damage.</p> <p>If the Contractor fails to do so, the Employer may:</p> <ul style="list-style-type: none"> (a) carry out the work himself or by others at the Contractor's risk and cost, provided that he does so in a reasonable manner. The costs properly incurred by the Employer in remedying the defect or damage shall be deducted from the Contract Price, but the Contractor shall have no responsibility for such work, or (b) require the Contractor to grant the Employer a reasonable reduction in the Contract Price to be agreed or fixed by arbitration under Clause 50, or (c) if the defect or damage is such that the Employer has been deprived of substantially the whole of the benefit of the Works or a part thereof, he may terminate the Contract in respect of such parts of the Works as cannot be put to the intended use. The Employer shall to the exclusion of any remedy under Clause 45 be entitled to recover all sums paid in respect of such parts of the Works together with the cost of dismantling the same, clearing the Site and returning Plant to the Contractor or otherwise disposing of it in accordance with the Contractor's instructions. |
| Removal of Defective Work | 30.6 | <p>If the defect or damage is such that repairs cannot be expeditiously carried out on the Site, the Contractor may with the consent of the Engineer or the Employer remove from the Site for the purposes of repair any part of the Works which is defective or damaged.</p> |
| Further Tests on Completion | 30.7 | <p>If the replacements or renewals are such that they may affect the performance of the Works, the Employer may request that Tests on Completion be repeated to the extent necessary. The request shall be made by notice within 28 days after the replacement or renewal. The Tests shall be carried out in accordance with Clause 28.</p> |
| Right of Access | 30.8 | <p>Until the Final Certificate of Payment has been issued, the Contractor shall have the right of access to all parts of the Works and to records of the working and performance of the Works.</p> <p>Such right of access shall be during the Employer's normal working hours at the Contractor's risk and cost. Access shall also be granted to any duly authorised representative of the Contractor whose name has been communicated in writing to the Engineer.</p> <p>Subject to the Engineer's approval, the Contractor may also at his own risk and cost make any tests which he considers desirable.</p> |
| Defects in Employer's and Engineer's Designs | 30.9 | <p>The Contractor shall not be liable for any defects resulting from designs furnished or specified by the Employer or the Engineer.</p> |
| Contractor to Search | 30.10 | <p>The Contractor shall, if required by the Engineer in writing, search for the cause of any defect, under the direction of the Engineer. Unless the defect is one for which the Contractor is liable under this Clause, the cost of the work carried out by the Contractor in searching for the cause of the defect shall be added to the Contract Price.</p> |
| Defects Liability Certificate | 30.11 | <p>When the Defects Liability Period for the Works or any part thereof has expired and the Contractor has fulfilled all his obligations under the Contract for defects in the Works or that part, the Engineer shall issue within 28 days to the Employer and the Contractor a Defects Liability Certificate to that effect.</p> |

Exclusive Remedies 30.12 Except in the case of Gross Misconduct, the Employer's remedies under this Clause shall be in place of and to the exclusion of any other remedy in relation to defects whatsoever.

Variations

Engineer's Right to Vary 31.1 The Engineer may by Variation Order to the Contractor at any time before the Works are taken over, instruct the Contractor to alter, amend, omit, add to or otherwise vary any part of the Works.

The Contractor shall not vary or alter any of the Works, except in accordance with a Variation Order from the Engineer. The Contractor may, however, at any time propose variations of the Works to the Engineer.

Variation Order Procedure 31.2 Prior to any Variation Order under Sub-Clause 31.1 the Engineer shall notify the Contractor of the nature and form of such variation.

As soon as possible after having received such notice, the Contractor shall submit to the Engineer:

(a) a description of work, if any, to be performed and a programme for its execution, and

(b) the Contractor's proposals for any necessary modifications to the Programme according to Sub-Clause 26.1 or to any of the Contractor's obligations under the Contract, and

(c) the Contractor's proposals for adjustment to the Contract Price.

Following the receipt of the Contractor's submission the Engineer shall, after due consultation with the Employer and the Contractor, decide as soon as possible whether or not the variation shall be carried out.

If the Engineer decides that the variation shall be carried out, he shall issue a Variation Order clearly identified as such in accordance with the Contractor's submission or as modified by agreement. If the Engineer and the Contractor are unable to agree the adjustment of the Contract Price, the provisions of Sub-Clause 31.3 shall apply.

Disagreement on Adjustment of the Contract Price 31.3 If the Contractor and the Engineer are unable to agree on the adjustment of the Contract Price, the adjustment shall be determined in accordance with the rates specified in the Schedule of Prices.

If the rates contained in the Schedule of Prices are not directly applicable to the specific work in question, suitable rates shall be established by the Engineer reflecting the level of pricing in the Schedule of Prices.

Where rates are not contained in the said Schedule, the amount shall be such as is in all the circumstances reasonable. Due account shall be taken of any over- or under-recovery of overheads by the Contractor in consequence of the variation.

The Contractor shall also be entitled to be paid:

(a) the cost of any partial execution of the Works rendered useless by any such variation, and

(b) the cost of making necessary alterations to Plant already manufactured or in the course of manufacture or of any work done that has to be altered in consequence of such a variation, and

(c) any additional costs incurred by the Contractor by the disruption of the progress of the Works as detailed in the Programme, and

(d) the net effect of the Contractor's finance costs, including interest, caused by the variation.

The Engineer shall on this basis determine the rates or prices to enable on-account payment to be included in certificates of payment.

Contractor to Proceed 31.4 On receipt of a Variation Order, the Contractor shall forthwith proceed to carry out the variation and be bound to these Conditions in so doing as if such variation was stated in the Contract.

The work shall not be delayed pending the granting of an extension of the Time for Completion or an adjustment to the Contract Price under Sub-Clause 31.3.

Records of Costs 31.5 In any case where the Contractor is instructed to proceed with a variation prior to the determination of the adjustment to the Contract Price in respect thereof the Contractor shall keep records of the cost of undertaking the variation and of time expended thereon. Such records shall be open to inspection by the Engineer at all reasonable times.

Ownership of Plant

Ownership of Plant 32.1 Plant to be supplied pursuant to the Contract shall become the property of the Employer at whichever is the earlier of the following times:

- (a) when Plant is delivered to Site, or
- (b) when by virtue of Sub-Clause 24.2 the Contractor becomes entitled to payment of the value of the Plant

Certificates and Payment

Terms of Payment 33.1 The terms of payment shall be as stated in the Preamble.

Method of Application 33.2 Unless otherwise specified in Part II applications by the Contractor for payment shall be made to the Engineer as follows:

- (a) in respect of the progress of the Works accompanied by such evidence of the value of the work done as the Engineer may require, and
- (b) in respect of Plant shipped and en route to the Site identifying the Plant concerned and accompanied by such evidence of shipment and of payment of freight and insurance and by such other documents as the Engineer may require, and
- (c) for additional payment in accordance with Clause 34.

Any other application for payment shall state the amounts claimed and the detailed particulars in respect of which the application is made.

Issue of Certificate of Payment 33.3 Within 14 days after receiving an application for payment which the Contractor was entitled to make the Engineer shall issue a Certificate of Payment to the Employer showing the amount due, with a copy to the Contractor.

A certificate of payment, other than the Final Certificate of Payment, shall not be withheld on account of:

- (a) defects of a minor character which are not such as to affect the use of the Works, or
- (b) any part of the payment applied for being disputed. In such case a certificate of payment for the undisputed amount shall be issued.

Corrections to Certificates of Payment 33.4 The Engineer may in any certificate of payment make any correction or modification that should properly be made in respect of any previous certificate.

Payment 33.5 Unless otherwise specified in Part II, the Employer shall pay the amount certified within 28 days from the date of issue of each certificate of payment to the Contractor at his principal place of business.

Delayed Payment	33.6	If payment of any sum payable under Sub-Clause 33.5 is delayed, the Contractor shall be entitled to receive interest on the amount unpaid during the period of delay. Unless otherwise stated in Part II the interest shall be at the annual rate of three percentage points above the discount rate of the central bank in the Contractor's country. The Contractor shall be entitled to such payment without formal notice and without prejudice to any other right or remedy.
Remedies on Failure to Certify or Make Payment	33.7	The Contractor shall be entitled to stop the Works by giving 14 days notice to the Engineer and the Employer, if either: (a) the Engineer fails to issue a certificate of payment upon proper application by the Contractor, or (b) the Employer fails to make any payment as provided in this Clause. The cost to the Contractor together with profit occasioned by the stoppage and the subsequent resumption of work, shall be added to the Contract Price. The Contractor shall also be entitled to terminate the Contract by giving 28 days notice to the Engineer and the Employer in any case where the Engineer has failed to issue a certificate of payment upon proper application by the Contractor.
Payment by Measurement	33.8	For any part of the Works which is to be paid according to quantity supplied or work done, the provisions for measurement shall be stated in Part II.
Application for Final Certificate of Payment	33.9	The Contractor shall make application to the Engineer for the Final Certificate of Payment within 28 days after the issue of the Defects Liability Certificate, or more than one, the last Defects Liability Certificate. The application for the Final Certificate of Payment shall be accompanied by a final account prepared by the Contractor. The final account shall give full details of the value of all Plant supplied and work done under the Contract together with: (a) such additions to or deductions from the Contract Price as have been agreed and (b) all claims for additional payment to which the Contractor may consider himself entitled.
Issue of Final Certificate of Payment	33.10	The Engineer shall issue to the Employer with a copy to the Contractor, the Final Certificate of Payment within 28 days after receiving an application in accordance with Sub-Clause 33.9. If the Contractor has not applied for a Final Certificate of Payment within the time specified in Sub-Clause 33.9 the Engineer shall request the Contractor to do so within a further period of 28 days. If the Contractor fails to make such application, the Engineer shall issue the Final Certificate of Payment for such amount as he deems correct.
Final Certificate of Payment Conclusive	33.11	A Final Certificate of Payment shall be conclusive evidence of the value of the Works, that the Works are in accordance with the Contract and that the Contractor has performed all his obligations under the Contract. Payment of the amount certified in the Final Certificate of Payment shall be conclusive evidence that the Employer has performed all his obligations under the Contract. A Final Certificate of Payment or payment shall not be conclusive: (a) to the extent that fraud or dishonesty relates to or affects any matter dealt with in the certificate, or (b) if any arbitration or court proceedings under the Contract have been commenced by either party before the expiry of 84 days after the issue of the Final Certificate of Payment.

Claims

Procedure 34.1 In any case where under these Conditions there are circumstances which the Contractor considers entitle him to claim additional payment, the Contractor shall:

(a) if he intends to make any claim for additional payment give to the Engineer notice of his intention to make such claim within 28 days after the said circumstances became known to the Contractor stating the reasons for his claim, and

(b) as soon as reasonably practical after the date of such notice submit to the Engineer full and detailed particulars of his claim but not later than 182 days after such notice unless otherwise agreed by the Engineer. In any event such particulars shall be submitted no later than the application for the Final Certificate of Payment. The Contractor shall thereafter promptly submit such further particulars as the Engineer may reasonably require to assess the validity of the claim.

Assessment 34.2 When the Engineer has received full and detailed particulars of the Contractor's claim in accordance with Sub-Clause 34.1 and such further particulars as he may reasonably have required he shall after due consultation with the Employer and the Contractor determine whether the Contractor is entitled to additional payment and notify the parties accordingly.

The Engineer may reject any claim for additional payment which does not comply with the requirements of Sub-Clause 34.1.

Foreign Currency and Rates of Exchange

Payment in Foreign Currencies 35.1 Arrangements for payment in foreign currencies shall be as stated in the Preamble.

Currency Restrictions 35.2 The Employer shall reimburse the Contractor for any loss arising from:

(a) currency restrictions, and

(b) restrictions on the transfer of currency in which the Contractor is to be paid which are imposed by the government or authorised agency of the government of the country from which any payments under the Contract are to be made.

This Sub-Clause only applies to restrictions imposed after the date 28 days prior to the latest date for submission of tenders for the Works.

Rates of Exchange 35.3 Where the Contract provides for payment in Foreign Currency the rates of exchange between the currencies shall be fixed for the purpose of the Contract and shall be as stated in the Preamble.

If such rates of exchange are not stated in the Preamble the rates to be used shall be those quoted by the central bank of the country whose currency is to be sold 28 days or the nearest day thereto prior to the latest date for submission of tenders for the Works.

Provisional Sums

Use of Provisional Sums 36.1 A Provisional Sum shall only be used, in whole or in part in accordance with the Engineer's instructions.

The total sum paid to the Contractor shall include only such amounts in respect of work, supplies or services to which such Provisional Sums relate as the Engineer shall have instructed.

**Ordering
Work against
Provisional Sums**

- 36.2** In respect of every Provisional Sum the Engineer may after due consultation with the Employer and the Contractor order:
- (a) work to be executed, including goods, materials or services to be supplied by the Contractor. The value of such work executed, determined in accordance with Clause 31, shall be paid to the Contractor in accordance with Clause 33, and
 - (b) goods and materials to be purchased by the Contractor, for which payment will be made in accordance with Sub-Clause 36.4.

**Invoices and
Receipts**

- 36.3** The Contractor shall, when required by the Engineer, produce quotations, invoices, vouchers and accounts or receipts in connection with expenditure in respect of Provisional Sums.

**Payment against
Provisional Sums**

- 36.4** For all work executed or goods, materials or services supplied or purchased by the Contractor under Sub-Clause 36.2 (b), there shall be included in the sums paid to the Contractor:
- (a) the actual price paid or due to be paid by the Contractor, and
 - (b) in respect of all other charges and profit, a percentage of the actual price paid or due to be paid. Such percentage shall be as stated in the Preamble.

Risk and Responsibility

**Allocation of Risk
and Responsibility**

- 37.1** The Risks of loss of or damage to physical property and of death and personal injury which arise in consequence of the performance of the Contract shall be allocated between the Employer and the Contractor as follows:
- (a) the Employer: the Employer's Risks as specified in Sub-Clause 37.2
 - (b) the Contractor: the Contractor's Risks as specified in Sub-Clause 37.3.

Employer's Risks

- 37.2** The Employer's Risks are:
- (a) war and hostilities (whether war be declared or not), invasion, act of foreign enemies;
 - (b) rebellion, revolution, insurrection, military or usurped power or civil war insofar as it relates to the country in which the Works are located or country through which plant must be transported;
 - (c) ionising radiation or contamination by radio-activity from any nuclear fuel, from any nuclear waste from the combustion of nuclear fuel, radio-active toxic explosives or other hazardous properties of any explosive nuclear assembly or nuclear components thereof;
 - (d) pressure waves caused by aircraft travelling at sonic or supersonic speed;
 - (e) riot, commotion or disorder, unless solely restricted to the employees of the Contractor or of his Subcontractors;
 - (f) use or occupation of the Works or any part thereof by the Employer;
 - (g) fault, error, defect or omission in the design of any part of the Works by the Engineer, Employer or those for whom the Employer is responsible;
 - (h) the use or occupation of the Site by the Works or any part thereof, or for the purposes of the Contract; or interference, whether temporary or permanent with any right of way, light, air or water or with any easement, wayleaves or right of similar nature which is the inevitable result of the construction of the Works in accordance with the Contract;
 - (i) the right of the Employer to construct the Works or any part thereof on, over, under, in or through any land;

(j) damage (other than that resulting from the Contractor's method of construction) which is the inevitable result of the construction of the Works in accordance with the Contract;

(k) the act, neglect or omission or breach of contract or of statutory duty of the Engineer, the Employer or other contractors engaged by the Employer or of their respective employees or agents;

and all risks which an experienced contractor could not have foreseen or, if foreseeable, against which measures to prevent loss, damage or injury from occurring could not reasonably have been taken by such contractor.

- Contractor's Risks** **37.3** The Contractor's Risks are all risks other than those identified as the Employer's Risks.

Care of the Works and Passing of Risk

- Contractor's Responsibility for the Care of the Works** **38.1** The Contractor shall be responsible for the care of the Works or any Section thereof from the Commencement Date until the Risk Transfer Date applicable thereto under Sub-Clause 38.2.

The Contractor shall also be responsible for the care of any part of the Works upon which any outstanding work is being performed by the Contractor during the Defects Liability Period until completion of such outstanding work.

- Risk Transfer Date** **38.2** The Risk Transfer Date in relation to the Works or a Section thereof is the earliest of either:

(a) the date of issue of the Taking-Over Certificate, or

(b) the date when the Engineer is deemed to have issued the Taking-Over Certificate or the Works are deemed to have been taken over in accordance with Clause 29, or

(c) the date of expiry of the notice of termination when the Contract is terminated by the Employer or the Contractor in accordance with these Conditions.

- Passing of Risk Loss of or Damage to the Works** **39.1** The risk of loss of or damage to the Works or any Section thereof shall pass from the Contractor to the Employer on the Risk Transfer Date applicable thereto.

- Loss or Damage Before Risk Transfer Date** **39.2** Loss of or damage to the Works or any Section thereof occurring before the Risk Transfer Date shall:

(a) to the extent caused by any of the Contractor's Risks, be made good forthwith by the Contractor at his own cost, and

(b) to the extent caused by any of the Employer's Risks, be made good by the Contractor at the Employer's expense if so required by the Engineer within 28 days after the occurrence of the loss or damage. The price for making good such loss and damage shall be in all circumstances reasonable and shall be agreed by the Employer and the Contractor, or in the absence of agreement, shall be fixed by arbitration under Clause 50.

- Loss or Damage After Risk Transfer Date** **39.3** After the Risk Transfer Date, the Contractor's liability in respect of loss of or damage to any part of the Works shall, except in the case of Gross Misconduct, be limited:

(a) to the fulfillment of the Contractor's obligations under Clause 30 in respect of defects therein, and

(b) to making good forthwith loss or damage caused by the Contractor during the Defects Liability Period.

Damage to Property and Injury to Persons

Contractor's Liability **40.1** Except as provided under Sub-Clause 41.1, the Contractor shall be liable for and shall indemnify the Employer against all losses, expenses and claims in respect of any loss of or damage to physical property (other than the Works), death or personal injury occurring before the issue of the last Defects Liability Certificate to the extent caused by:

- (a) defective design, material or workmanship of the Contractor, or
- (b) negligence or breach of statutory duty of the Contractor, his Subcontractors or their respective employees and agents.

Employer's Liability **40.2** The Employer shall be liable for and shall indemnify the Contractor against all losses, expenses or claims in respect of loss of or damage to any physical property or of death or personal injury whenever occurring, to the extent caused by any of the Employer's Risks.

Accidents **41.1** The Contractor shall be liable for and shall indemnify the Employer against all losses, expenses or claims arising in connection with the death of or injury to any person employed by the Contractor or his Subcontractors for the purposes of the Works, unless caused by any acts or defaults of the Engineer, the Employer or other contractors engaged by the Employer or by their respective employees and agents. In the latter cases the Employer shall be liable for and shall indemnify the Contractor against all losses, expenses and claims arising in connection therewith.

Limitations of Liability

Liability for Indirect or Consequential Damage **42.1** Neither party shall be liable to the other for any loss of profit, loss of use, loss of production, loss of contracts or for any other indirect or consequential damage that may be suffered by the other, except:

- (a) as expressly provided in Clause 27, and
- (b) those provisions of these Conditions whereby the Contractor is expressly entitled to receive profit.

Maximum Liability **42.2** The liability of the Contractor to the Employer under these Conditions shall in no case exceed the sum stated in the Preamble or, if no such sum is stated, the Contract Price.

Liability after Expiration of Defects Liability Period **42.3** The Contractor shall have no liability to the Employer for any loss of or damage to the Employer's physical property which occurs after the expiration of the Defects Liability Period unless caused by Gross Misconduct of the Contractor.

Exclusive Remedies **42.4** The Employer and the Contractor intend that their respective rights, obligations and liabilities as provided for in these Conditions shall alone govern their rights under the Contract and in relation to the Works.

Accordingly, the remedies provided under the contract in respect of or in consequence of:

- (a) any breach of contract, or
- (b) any negligent act or omission, or
- (c) death or personal injury, or
- (d) loss or damage to any property

are, save in the case of Gross Misconduct, to be to the exclusion of any other remedy that either may have against the other under the law governing the Contract or otherwise.

Mitigation of Loss or Damage	42.5	In all cases the party claiming a breach of Contract or a right to be indemnified in accordance with the Contract shall be obliged to take all reasonable measures to mitigate the loss or damage which has occurred or may occur.
Foreseen Damages	42.6	Where either the Employer or the Contractor is liable in damages to the other these shall not exceed the damage which the party in default could reasonably have foreseen at the date of the Contract.

Insurance

The Works	43.1	The Contractor shall insure the Works in the joint names of the Contractor and the Employer to their full replacement value with deductible limits not exceeding those stated in the Preamble. (a) from the Commencement Date until the Risk Transfer Date against any loss or damage caused by any of the Contractor's Risks and any other risks specified in the Preamble, and (b) during the Defects Liability period against any loss or damage which is caused either: (i) by the Contractor in completing any outstanding work or complying with his obligations under Clause 30, or (ii) by any of the Contractor's Risks which occurred prior to the Risk Transfer Date.
Contractor's Equipment	43.2	The Contractor shall insure Contractor's Equipment for its full replacement value whilst in transit to the Site, from commencement of loading until completion of unloading at the Site and while on the Site against all loss or damage caused by any of the Contractor's Risks.
Third Party Liability	43.3	The Contractor shall insure against liability to third parties for any death or personal injury and loss of or damage to any physical property arising out of the performance of the Contract and occurring before the issue of the last Defects Liability Certificate. Such insurance shall be effected before the Contractor begins any work on the Site. The insurance shall be for not less than the amount specified in the Preamble.
Employees	43.4	The contractor shall insure and maintain insurance against his liability under Sub-Clause 41.1.
General Requirements of Insurance Policies	43.5	The Contractor shall: (a) whenever required by the Employer produce the policies or certificates of any insurance which he is required to effect under the Contract together with receipts for the premiums, (b) effect all insurances for which he is responsible with an insurer and in terms approved by the Employer, and (c) make no material alterations to the terms of any insurance without the Employer's approval. If an insurer makes any material alteration to the terms the Contractor shall forthwith notify the Employer, and (d) in all respects comply with any conditions stipulated in the insurance policies which he is required to place under the Contract.

Permitted Exclusions from Insurance Policies	43.6	The insurance cover effected by the Contractor may exclude any of the following (a) the cost of making good any part of the Works which is defective or otherwise does not comply with the Contract provided that it does not exclude the cost of making good any loss or damage to any other part of the Works attributable to such defect or non-compliance, (b) indirect or consequential loss or damage including any reductions in the Contract Price for delay, (c) wear and tear, shortages and theft, (d) risks relating to vehicles for which third party or other insurance is required by law.
Remedies on the Contractor's Failure to Insure	43.7	If the Contractor fails to produce evidence of insurance cover as stated in Sub-Clause 43.5. (a) then the Employer may effect and keep in force such insurance. Premiums paid by the Employer for this purpose shall be deducted from the Contract Price.
Amounts not Recovered	43.8	Any amounts not recovered from the insurers shall be borne by the Employer or Contractor in accordance with their responsibilities under Clause 37.

Force Majeure

Definition of Force Majeure	44.1	Force Majeure means any circumstances beyond the control of the parties including but not limited to: (a) war and other hostilities, (whether war be declared or not), invasion, act of foreign enemies, mobilisation, requisition or embargo; (b) ionising radiation or contamination by radio-activity from any nuclear fuel or from any nuclear waste from the combustion of nuclear fuel, radio-active toxic explosives, or other hazardous properties of any explosive nuclear assembly or nuclear components thereof; (c) rebellion, revolution, insurrection, military or usurped power and civil war; (d) riot, commotion or disorder, except where solely restricted to employees of the Contractor.
Effect of Force Majeure	44.2	Neither party shall be considered to be in default or in breach of his obligations under the Contract to the extent that performance of such obligations is prevented by any circumstances of Force Majeure which arise after the date of the Letter of Acceptance or the date when the Contract becomes effective, whichever is the earlier.
Notice of Occurrence	44.3	If either party considers that any circumstances of Force Majeure have occurred which may affect performance of his obligations he shall promptly notify the other party and the Engineer thereof.
Performance to Continue	44.4	Upon the occurrence of any circumstances of Force Majeure the Contractor shall endeavour to continue to perform his obligations under the Contract so far as is reasonably practicable. The Contractor shall notify the Engineer of the steps he proposes to take including any reasonable alternative means for performance which is not prevented by Force Majeure. The Contractor shall not take any such steps unless directed so to do by the Engineer.
Additional Costs caused by Force Majeure	44.5	If the Contractor incurs additional costs in complying with the Engineer's directions under Sub-Clause 44.4, the amount thereof shall be certified by the Engineer and added to the Contract Price.

Damage Caused by Force Majeure	44.6	If in consequence of Force Majeure the Works shall suffer loss or damage the Contractor shall be entitled to have the value of the work done, without regard to the loss or damage that has occurred, included in a Certificate of Payment.
Termination in Consequence of Force Majeure	44.7	If circumstances of Force Majeure have occurred and shall continue for a period of 182 days then, notwithstanding that the Contractor may by reason thereof have been granted an extension of Time for Completion of the Works, either party shall be entitled to serve upon the other 28 days' notice to terminate the Contract. If at the expiry of the period of 28 days Force Majeure shall still continue the Contract shall terminate.
Payment on Termination for Force Majeure	44.8	If the Contract is terminated under Sub-Clause 44.7 the contractor shall be paid the value of the work done. The Contractor shall also be entitled to receive: (a) the amounts payable in respect of any preliminary items so far as the work or service comprised therein has been carried out and a proper proportion of any such item in which the work or service comprised has only been partially carried out, (b) the cost of materials or goods ordered for the Works or for use in connection with the Works which have been delivered to the Contractor or of which the Contractor is legally liable to accept delivery. Such materials or goods shall become the property of and be at the risk of the Employer when paid for by the Employer and the Contractor shall place the same at the Employer's disposal, (c) the amount of any other expenditure which in the circumstances was reasonably incurred by the Contractor in the expectation of completing the whole of the Works, (d) the reasonable cost of removal of Contractor's Equipment from the Site and the return thereof to the Contractor's works in his country or to any other destination at no greater cost, and (e) the reasonable cost of repatriation of the Contractor's staff and workmen employed wholly in connection with the Works at the date of such termination.
Release from Performance	44.9	If circumstances of Force Majeure occur and in consequence thereof under the law governing the Contract the parties are released from further performance of the Contract, the sum payable by the Employer to the Contractor shall be the same as that which would have been payable under Sub-Clause 44.8 if the Contract had been terminated under Sub-Clause 44.7.
Force Majeure Affecting Engineer's Duties	44.10	The provisions of Clause 44 shall also apply in circumstances where the Engineer is prevented from performing any of his duties under the Contract by reason of Force Majeure.

Default

Notice of Default	45.1	If the Contractor is not executing the Works in accordance with the Contract or is neglecting to perform his obligations thereunder so as seriously to affect the carrying out of the Works, the Engineer may give notice to the Contractor requiring him to make good such failure or neglect.
Contractor's Default	45.2	If the Contractor: (a) has failed to comply within a reasonable time with a notice under Sub-Clause 45.1, or (b) assigns the Contract or subcontracts the whole of the Works without the Employer's written consent, or

(c) becomes bankrupt or insolvent, has a receiving order made against him or compounds with his creditors, or carries on business under a receiver, trustee or manager for the benefit of his creditors or goes into liquidation,

the Employer may, after having given 7 days notice to the Contractor, terminate the Contract and expel the Contractor from the Site.

Any such expulsion and termination shall be without prejudice to any other rights or powers of the Employer, the Engineer or the Contractor under the Contract.

The Employer may upon such termination complete the Works himself or by any other contractor.

Valuation at Date of Termination	45.3	The Engineer shall, as soon as possible after such termination, certify the value of the Works and all sums then due to the Contractor as at the date of termination in accordance with Clause 33.
Payment after Termination	45.4	The Employer shall not be liable to make any further payments to the Contractor until the Works have been completed. When the Works are so complete, the Employers shall be entitled to recover from the Contractor the extra costs, if any, of completing the Works after allowing for any sum due to the Contractor under Sub-Clause 45.3. If there is no such extra cost the Employer shall pay any balance due to the Contractor.
Effect on Liability for Delay	45.5	The Contractor's liability under Clause 27 shall immediately cease when the Employer expels him from the Site without prejudice to any liability thereunder that may have already occurred.
Employer's Default	46.1	The Contractor may, by giving 14 days notice to the Employer and the Engineer, terminate the Contract if the Employer: (a) fails to pay the Contractor the amount due under any certificate of the Engineer within 28 days after the amount became payable, or (b) interferes with or obstructs the issue of any certificate of the Engineer, or (c) becomes bankrupt or insolvent, has a receiving order made against him or compounds with his creditors, or carries on business under a receiver, trustee or manager for the benefit of his creditors or goes into liquidation, or (d) consistently fails to meet his contractual obligations, or (e) appoints a person to act with or in replacement of the Engineer without the Contractor's consent. Any such termination shall be without prejudice to any other rights of the Contractor under the Contract.
Removal of Contractor's Equipment	46.2	On such termination, the Contractor shall be entitled to remove immediately all Contractor's Equipment which is on the Site.
Payment on Termination for Employer's Default	46.3	In the event of such termination the Employer shall pay the Contractor an amount calculated in accordance with Sub-Clause 44.8. The Employer shall pay in addition the amount of any loss or damage, including loss of profit which the Contractor may have suffered in consequence of termination. The additional amount shall, however, not exceed the limit specified in the Preamble.

Changes in Cost and Legislation

Labour, Materials and Transport	47.1	Where the Contract Price is to be adjusted for changes in the cost of labour, materials, transport or other costs of execution of the Works, the method for calculating such adjustment shall be specified in the Preamble.
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When calculating the adjustment no account shall be taken of any increased cost which results from the Contractor's default or negligence.

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| Statutory and Other Regulations | 47.2 | The Contract Price shall be adjusted to take account of any increase or decrease in cost resulting from changes in legislation of the country where the Site is located or in its generally accepted interpretation. |
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Legislation means any law, order, regulation or bye-law having the force of law, which affects the Contractor in the performance of his obligations under the Contract, made after the date 28 days prior to the latest date for submission of tenders for the Works.

The Engineer shall certify the amount of the resulting increase or decrease in cost, which shall be added to or deducted from the Contract Price.

Customs

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| Customs and Import Duties | 48.1 | Unless otherwise stated in Part II the Employer shall pay all customs, import duties and taxes in consequence of the importation of Plant. If the Contractor is required to pay such customs, import duties and taxes, the Employer shall reimburse the amount thereof. |
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| Clearance through Customs | 48.2 | The Employer shall assist the Contractor in obtaining clearance through the customs of all Plant and Contractor's Equipment and in procuring any necessary government consent to the re-export of Contractor's Equipment when it is removed from the Site. |
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Notices

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| Notices to Contractor | 49.1 | All certificates, notices or written orders to be given to the Contractor by the Employer or the Engineer under these Conditions shall be sent by airmail post, cable, telex or facsimile transmission to or left at the Contractor's principal place of business or such other address as the Contractor shall nominate for that purpose, or may be handed over to the Contractor's representative. |
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| Notices to Employer and Engineer | 49.2 | Any notice to be given to the Employer or to the Engineer under these Conditions shall be sent by airmail post, cable, telex or facsimile transmission to or left at the respective addresses nominated for that purpose in the Preamble, or handed over to the Engineer's or the Employer's representative authorised to receive it. |
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| Minutes of Meetings | 49.3 | Instructions or notices to the Contractor and notices from the Contractor to the Engineer or the Employer recorded in a minute or protocol signed by the authorized representatives of the giver and recipient of such notice or instruction shall be valid notice or instruction for the purposes of the Contract. |
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Disputes and Arbitration

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| Disputes concerning Engineer's Decisions | 50.1 | If either party is dissatisfied with a decision or instruction of the Engineer as confirmed, reversed or varied in accordance with Clause 2 he may refer the matter to arbitration pursuant to Sub-Clause 50.2. |
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Unless the dissatisfied party has notified the other party and the Engineer within 56 days of such decision or instruction of his intention to refer the matter to arbitration, he shall be deemed to have accepted the decision as final.

Reference to arbitration shall not relieve the Contractor of his obligation to proceed with the Works in accordance with the Engineer's decision or instruction, nor relieve the Employer of any of his obligations under the Contract.

The Contractor shall in any such arbitration be at liberty to rely on reasons additional to the reasons stated in the notice given under Sub-Clause 2.7.

Arbitration 50.2 If at any time any question, dispute or difference shall arise between the Employer and the Contractor in connection with or arising out of the Contract or the carrying out of the Works either party shall be entitled to refer the matter to be finally settled by arbitration in accordance with the Rules of Conciliation and Arbitration of the International Chamber of Commerce by one or more arbitrators appointed in accordance with those Rules, or by arbitration in accordance with such other rules as are specified in Part II.

The Arbitrator(s) shall have full power to open up, review and revise:

(a) any decision or instruction of the Engineer referred to arbitration pursuant to Sub-Clause 50.1, and

(b) any certificate of the Engineer related to the dispute.

Works to Continue 50.3 Performance of the Contract shall continue during arbitration proceedings unless the Employer shall order suspension. If any such suspension is ordered the reasonable costs incurred by the Contractor and occasioned thereby shall be added to the Contract Price.

No payments due or payable by the Employer shall be withheld on account of pending reference to arbitration.

Time Limit for Arbitration 50.4 Formal notice of arbitration must be given to the other party, and where required to the appropriate arbitration body, no later than 84 days after the issue of the Final Certificate of Payment.

Law and Procedure

Applicable Law 51.1 The law which is to apply to the Contract and under which the Contract is to be construed is stated in the Preamble.

Procedural Law 51.2 The law governing the procedure and administration of any arbitration instituted pursuant to Clause 50 is stated in the Preamble.

Language 51.3 The language and place of the arbitration are stated in the Preamble.

PART II SPECIAL CONDITIONS

(The Clauses referred to in Part II — Section A are those where the provision in the General Conditions (Part I) refer to an alternative solution to be stated in Part II. The provisions in the General Conditions will apply unless an alternative solution is given in Part II — Section A. The clauses in this section need therefore not be completed, but must be completed if alternative solutions to the relevant Part I provisions are necessary.)

Section A

Conditions
Precedent to
Commencement

Sub-Clause 1.1.1.

The following financial and administrative requirements are conditions precedent to commencement:

Defects Liability
Period

Sub-Clause 1.1.11.

The Defects Liability Period is _____ days.

Sub-Clause 2.1.

The Engineer requires the consent of the Employer before exercising the following duties:

Operation and
Maintenance
Manuals

Sub-Clause 6.6.

Operation and Maintenance Manuals shall be in the _____ language.

Manufacturing
Drawings

Sub-Clause 6.9.

The Contractor is required to disclose to the Engineer or the Employer confidential information as follows:

General Obligations

Sub-Clause 8.1.

The following facilities will be provided by the Employer:

The facilities will be provided at the following rates:

Performance
Security

Sub-Clause 10.1.

The Contractor shall obtain a Performance Security of an amount of _____.

**Contractor's
Equipment**

Sub-Clause 14.1.

The following items of Contractor's Equipment will be provided free of charge by the Employer for the Contractor's use:

**Extention of Defects
Liability Period**

Sub-Clause 30.4.

In the event of suspension the Defects Liability Period shall not last more than ____ days after the date the Plant would have been delivered but for the suspension.

**Method of
Application**

Sub-Clause 33.2.

Application for payment shall be made as follows:

Payment

Sub-Clause 33.5.

The period for payment shall be:

The place for payment shall be:

Delayed Payment

Sub-Clause 33.6.

The interest rate for delayed payment is _____ %.

**Payment by
Measurement**

Sub-Clause 33.8.

The provisions for measurement are:

**Customs and
Import Duties**

Sub-Clause 48.1.

The Contractor shall pay and be reimbursed by the Employer for the following customs, import duties and taxes in consequence of the importation of the Plant:

Arbitration

Sub-Clause 50.2.

The rules of arbitration shall be those of:

Section B

Add further Special Conditions as may be required for the particular project.

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Tender

NAME OF CONTRACT: _____

TENDER

TO: _____

1. Having examined the Tender Documents including the Instructions to Tenderers, Conditions of Contract, Specification, Employer's Drawings and Schedule of Prices for the execution of the above-named Contract, we, the undersigned, hereby offer to execute, complete and remedy defects in the whole of the Works in conformity with the said documents for the sum of

(_____)

2. We undertake, if our Tender is accepted, to complete and deliver the whole of the Works comprised in the Contract within the time or times stated in the Contract, subject to the said Conditions.
3. We agree to abide by this Tender for a period of _____ days from the date fixed for receiving the same and it shall remain binding upon us and may be accepted by you at any time before the expiration of that period.
4. This Tender is submitted under our covering letter
reference _____ dated _____ and the completed tender documents and other information, required by the Instructions to Tenderers, which are enclosed therewith all of which shall be read and construed as forming a part hereof.
5. This Tender, together with your written acceptance thereof shall constitute a binding Contract between us, valid from the date of your written Letter of Acceptance.
6. We understand that you are not bound to accept the lowest or any Tender you may receive.

Dated this _____ day of _____ 19 ____

Signature _____ in the capacity of _____

duly authorised to sign tenders for and on behalf of:

Witness _____

Address _____

Occupation _____

Contract Agreement

This Agreement made the _____ day of _____ 19 ____

Between _____

_____ (hereinafter called "the Employer") and

_____ (hereinafter called "the Contractor")

Whereas the Employer requires that certain Works should be provided and executed by the Contractor, namely _____

and has appointed _____ as the Engineer for the purposes thereof and has accepted a Tender by the Contractor for the provision and execution of such Works in the sum of _____

_____ (hereinafter called "the Contract Price").

Now it is agreed as follows:

1. In this Agreement words and expressions shall have the meanings as are respectively assigned to them in the Conditions of Contract hereinafter referred to.
2. The following documents shall be deemed to form this Agreement:
 - (a) The Letter of Acceptance
 - (b) The Preamble
 - (c) The Conditions of Contract Part II
 - (d) The Conditions of Contract Part I
 - (e) The Specification
 - (f) The Schedules
 - (g) The Employer's Drawings
 - (h) The Contractor's Drawings
 - (i) The Tender.
3. The Contractor shall provide execute and complete the Works and remedy defects therein in conformity in all respects with the provisions of the Contract.
4. The Employer shall pay the Contractor in consideration of the provision execution and completion of the Works and the remedying of defects therein the Contract Price or such other sum as may become payable under the provisions of the Contract at the times and in the manner prescribed by the Contract.

5. The parties have entered into this Agreement in accordance with their respective laws and statutes or constitutions on the date hereof by their duly authorised signatories.

Signature(s) on behalf of the Employer _____

Signature(s) on behalf of the Contractor _____

EDITORIAL AMENDMENTS

Following publication of the Third Edition of the Conditions of Contract for Electrical and Mechanical Works in 1987, a number of editorial amendments were agreed by FIDIC. The amendments have been incorporated during reprinting and the list below clarifies the differences between this copy and the original document.

Page 1	The following additional text has been inserted:
Commencement Date	Sub-Clause 1.1.1.(i) The date for commencement of the Works is _____
Page 2	Sub-Clause 36.4(b) was previously Sub-Clause 36.4 The word 'Sums' following 'shall be' has been deleted.
Page 8	Sub-Clause 2.7. The missing letter 'D' has been inserted in 'Disputing' (margin note.)
Page 33	Sub-Clause 44.8(b). The word 'Contractor' on the last line was previously 'Contract'.
Page 35	Sub-Clause 49.3. The word 'or' between 'minute' and 'protocol' was previously 'of'.
Index, page (i)	The words 'Adverse physical conditions and artificial obstructions' have been deleted.
Index, page (v)	The word 'adverse' has been deleted after 'Physical conditions'.
Contract Agreement	The word 'Agreement' in the title has been capitalised.
Line 4	Inverted commas have been inserted after 'Employer'.
Line 6	Inverted commas have been inserted before the word 'the' and deleted before the word 'Contractor'.
Line 7	The comma following the word 'executed' has been deleted.
Line 15	Inverted commas have been inserted before the word 'the' and deleted after the word 'the'.
Item 4, line 2	The word 'defects' was previously 'defect'.
Item 4, line 3	The word 'become' was previously 'be come'.
Item 5, line 1	The words 'and statutes or constitutions' have been inserted after the word 'laws'.
Item 5, line 2	The words 'by their duly authorized signatories' have been inserted after the word 'hereof'.
Item 5	The remaining text of the original document has been deleted and is replaced by: 'Binding Signatures(s) on behalf of the Employer _____', and 'Binding Signatures(s) on behalf of the Contractor _____'.

FEDERATION INTERNATIONALE DES INGENIEURS-CONSEILS
INTERNATIONAL FEDERATION OF CONSULTING ENGINEERS
INTERNATIONALE VEREINIGUNG BERATENDER INGENIEURE

CLIENT / CONSULTANT

MODEL SERVICES AGREEMENT

PART I	STANDARD CONDITIONS
PART II	CONDITIONS OF PARTICULAR APPLICATION
APPENDICES	A, B and C



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FOREWORD

The terms of the Client/Consultant Model Services Agreement (The White Book) have been prepared by the Fédération Internationale des Ingénieurs Conseils (FIDIC) and are recommended for general use for the purposes of pre-investment and feasibility studies, designs and administration of construction and project management, where proposals for such services are invited on an international basis. They replace the previous three documents, namely: IGRA 1979 D&S, IGRA 1979 PI, IGRA 1980 PM. They are equally adaptable for domestic agreements.

The version in English is considered by FIDIC as the official and authentic text for the purpose of translation.

In their preparation it was recognised that while there are numerous clauses which will be generally applicable there are some provisions which must necessarily vary to take account of the circumstances and locality in which the Services are to be performed. The clauses of general application have been grouped together in this document and are referred to as Part I – Standard Conditions. They are intended for incorporation as printed in the documents comprising the Agreement.

The Standard Conditions are linked with the Conditions of Particular Application, referred to as Part II, by the corresponding numbering of the clauses, so that Parts I and II together comprise the conditions governing the rights and obligations of the parties.

Part II must be specially drafted to suit each individual Agreement and type of Service. That part of the text of Part II which must be completed is printed on sheets which may be removed for incorporation with additional clauses.

FIDIC has now published the “White Book Guide” which includes comments on clauses in the Model Services Agreement and notes towards the preparation of Appendices A, B and C (“Scope of Services”, “Personnel, Equipment, Facilities and Services of Others to be Provided by the Client” and “Remuneration and Payment”).

It may also be helpful for users to refer to the other FIDIC publications, such as:

- Guide to the Use of Independent Consultants
- Selection by Ability
- The Role of the Consulting Engineer in Projects

AGREEMENT

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This Agreement made the _____ day of _____

Between _____

of _____

(hereinafter called “the Client”) of the one part

and _____

of _____

(hereinafter called “the Consultant”) of the other part.

Whereas the Client desires that certain Services should be performed by the Consultant, namely

and has accepted a proposal by the Consultant for the performance of such Services

**NOW THIS
AGREEMENT
WITNESSETH AS
FOLLOWS**

- 1. In this Agreement words and expressions shall have the same meanings as are respectively assigned to them in the Conditions of the Client/Consultant Model Services Agreement hereinafter referred to.

- 2. The following documents shall be deemed to form and be read and construed as part of this Agreement, namely:
 - a) The Letter of Acceptance;
 - b) The Conditions of the Client/Consultant Model Services Agreement (Part I – Standard Conditions and Part II – Conditions of Particular Application);
 - c) The Appendices, namely:
 - Appendix A –Scope of Services
 - Appendix B –Personnel, Equipment, Facilities and Services of Others to be Provided by the Client
 - Appendix C –Remuneration and Payment

3. In consideration of the payments to be made by the Client to the Consultant as hereinaftermentioned the Consultant hereby agrees with the Client to perform the Services in conformity with the provisions of the Agreement.
4. The Client hereby agrees to pay the Consultant in consideration of the performance of the Services such amounts as may become payable under the provisions of the Agreement at the times and in the manner prescribed by the Agreement.

In Witness whereof the parties hereto have caused this Agreement to be executed the day and year first before written in accordance with their respective laws.



Authorised signature(s) of Client

In the presence of _____

Name _____

Signature _____

Address _____



Authorised signature(s) of Consultant

In the presence of _____

Name _____

Signature _____

Address _____

CONDITIONS OF THE CLIENT/CONSULTANT MODEL SERVICES AGREEMENT

STANDARD CONDITIONS

DEFINITIONS AND INTERPRETATION

- DEFINITIONS 1.** The following words and expressions shall have the meanings assigned to them except where the context otherwise requires:
- (i) “Project” means the project named in Part II for which the Works are to be provided.
 - (ii) “Services” means the services to be performed by the Consultant in accordance with the Agreement and comprise Normal Services, Additional Services and Exceptional Services.
 - (iii) “Works” means the permanent works to be executed (including the goods and equipment to be supplied to the Client) for the achievement of the Project.
 - (iv) “Client” means the party named in the Agreement, who employs the Consultant, and legal successors to the Client and permitted assignees.
 - (v) “Consultant” means the party named in the Agreement, who is employed as an independent professional firm by the Client to perform the Services, and legal successors to the Consultant and permitted assignees.
 - (vi) “party” and “parties” means the Client and the Consultant and “third party” means any other person or entity as the context requires.
 - (vii) “Agreement” means the Conditions comprising the Conditions of the Client/Consultant Model Services Agreement Parts I and II together with Appendix A (Scope of Services), Appendix B (Personnel, Equipment, Facilities and Services of Others to be provided by the Client), Appendix C (Remuneration and Payment), Letter of Acceptance and Formal Agreement if completed, or otherwise as specified in Part II.

- (viii) "day" means the period between any one midnight and the next.
- (ix) "month" means a period of one month according to the Gregorian calendar commencing with any day of the month.
- (x) "Local Currency" (LC) means the currency of the country where the Project is located and "Foreign Currency" (FC) means any other currency.
- (xi) "Agreed Compensation" means additional sums as defined in Part II which are payable under the Agreement.

INTERPRETATION 2.

- (i) The headings in the Agreement shall not be used in its interpretation.
- (ii) The singular includes the plural, the masculine includes the feminine, and vice-versa where the context requires.
- (iii) If there is conflict between provisions of the Agreement, the last to be written chronologically shall prevail, unless otherwise specified in Part II.

OBLIGATIONS OF THE CONSULTANT

SCOPE OF SERVICES

3. The Consultant shall perform Services relating to the Project. The Scope of the Services is stated in Appendix A.

NORMAL, ADDITIONAL AND EXCEPTIONAL SERVICES

- 4.
- (i) Normal Services are those described as such in Appendix A.
 - (ii) Additional Services are those described as such in Appendix A or which by written agreement of the parties are otherwise additional to Normal Services.
 - (iii) Exceptional Services are those which are not Normal or Additional Services but which are necessarily performed by the Consultant in accordance with Clause 28.

DUTY OF CARE AND EXERCISE OF AUTHORITY

- 5.
- (i) The Consultant shall exercise reasonable skill, care and diligence in the performance of his obligations under the Agreement.
 - (ii) Where the Services include the exercise of powers or performance of duties authorised or required by the terms of a contract between the Client and any third party, the Consultant shall:
 - (a) act in accordance with the contract provided that the details of such powers and duties are acceptable to him where they are not described in Appendix A.
 - (b) if authorised to certify, decide or exercise discretion, do so fairly between the Client and third party not as an arbitrator but as an independent professional acts by his skill and judgement.
 - (c) if so authorised vary the obligations of any third party, subject to obtaining the prior approval of the Client to any variation which can have an important effect on costs or quality or time (except in any emergency when the Consultant shall inform the Client as soon as practicable).

CLIENT'S PROPERTY

6. Anything supplied by or paid for by the Client for the use of the Consultant shall be the property of the Client and where practicable shall be so marked. When the Services are completed or terminated the Consultant shall furnish inventories to the Client of what has not been consumed in the performance of the Services and shall deliver it as directed by the Client. Such delivery shall be regarded as an Additional Service.

OBLIGATIONS OF THE CLIENT

INFORMATION 7. The Client shall so as not to delay the Services and within a reasonable time give to the Consultant free of cost all information in his power to obtain which may pertain to the Services.

DECISIONS 8. On all matters properly referred to him in writing by the Consultant the Client shall give his decision in writing so as not to delay the Services and within a reasonable time.

ASSISTANCE 9. In the country of the Project and in respect of the Consultant, his personnel and dependents, as the case may be, the Client shall do all in his power to assist in:

- (i) the provision of documents necessary for entry, residence, work and exit;
- (ii) providing unobstructed access wherever it is required for the Services;
- (iii) import, export and customs clearance of personal effects and of goods required for the Services;
- (iv) their repatriation in emergencies;
- (v) the provision of the authorities necessary to permit the import of foreign currency by the Consultant for the Services and by his personnel for their personal use and to permit the export of money earned in the performance of the Services;
- (vi) providing access to other organisations for collection of information which is to be obtained by the Consultant.

**EQUIPMENT 10.
AND FACILITIES** The Client shall make available, free of cost, to the Consultant for the purpose of the Services the equipment and facilities described in Appendix B.

**CLIENT'S 11.
PERSONNEL** In consultation with the Consultant, the Client shall at his own cost arrange for the selection and provision of personnel in his employment to the Consultant in accordance with Appendix B. In connection with the Services such personnel shall take instructions only from the Consultant.

**SERVICES OF 12.
OTHERS** The Client shall at his cost arrange for the provision of services from others as described in Appendix B, and the Consultant shall co-operate with the suppliers of such services but shall not be responsible for them or their performance.

PERSONNEL

SUPPLY OF 13. PERSONNEL

The personnel who are sent by the Consultant to work in the country of the Project shall have been physically examined and found fit for their assignments, and their qualifications shall be acceptable to the Client.

The personnel to be supplied by the Client in accordance with Clause 11 shall be acceptable to the Consultant.

If the Client cannot supply Client's personnel or services of others for which he is responsible and it is agreed to be necessary for the satisfactory performance of the Services, the Consultant shall arrange for its supply as an Additional Service.

REPRESENTATIVES 14.

For the administration of the Agreement each party shall designate the official or individual to be his representative.

If required by the Client, the Consultant shall designate an individual to liaise with the Client's representative in the country of the Project.

CHANGES IN 15. PERSONNEL

If it is necessary to replace any person, the party responsible for the appointment shall immediately arrange for replacement by a person of comparable competence.

The cost of such replacement shall be borne by the party responsible for the appointment except that if the replacement is requested by the other party

- (i) such request shall be in writing stating the reasons for it and
- (ii) the party making the request shall bear the cost of replacement unless misconduct or inability to perform satisfactorily is established as the reason.

LIABILITY AND INSURANCE

LIABILITY 16. BETWEEN THE PARTIES

Liability of the Consultant 16.1

The Consultant shall only be liable to pay compensation to the Client arising out of or in connection with the Agreement if a breach of Clause 5 (i) is established against him.

Liability of the Client 16.2

The Client shall be liable to the Consultant if a breach of his duty to the Consultant is established against the Client.

Compensation 16.3

If it is considered that either party is liable to the other, compensation shall be payable only on the following terms:

- (i) Such compensation shall be limited to the amount of reasonably foreseeable loss and damage suffered as a result of such breach, but not otherwise.
- (ii) In any event, the amount of such compensation will be limited to the amount specified in Clause 18.1.
- (iii) If either party is considered to be liable jointly with third parties to the other, the proportion of compensation payable by him shall be limited to that proportion of liability which is attributable to his breach.

DURATION OF 17. LIABILITY

Neither the Client nor the Consultant shall be considered liable for any loss or damage resulting from any occurrence unless a claim is formally made on him before the expiry of the relevant period stated in Part II, or such earlier date as may be prescribed by law.

LIMIT OF 18. COMPENSATION AND INDEMNITY

Limit of Compensation 18.1

The maximum amount of compensation payable by either party to the other in respect of liability under Clause 16 is limited to the amount stated in Part II. This limit is without prejudice to any Agreed Compensation specified under Clause 31(ii) or otherwise imposed by the Agreement.

Each party agrees to waive all claims against the other in so far as the aggregate of compensation which might otherwise be payable exceeds the maximum amount payable.

If either party makes a claim for compensation against the other party and this is not established the claimant shall entirely reimburse the other for his costs incurred as a result of the claim.

Indemnity 18.2

So far as the applicable law permits, the Client shall indemnify the Consultant against the adverse effects of all claims including such claims by third parties which arise out of or in connection with the Agreement:

- (i) except insofar as they are covered by the insurances arranged under the terms of Clause 19.
- (ii) made after the expiry of the period of liability referred to in Clause 17.

Exceptions 18.3

Clauses 18.1 and 18.2 do not apply to claims arising:

- (i) from deliberate default or reckless misconduct, or
- (ii) otherwise than in connection with the performance of obligations under the Agreement.

INSURANCE 19. FOR LIABILITY AND INDEMNITY

The Client can request in writing that the Consultant

- (i) insures against his liability under Clause 16.1,
- (ii) increases his insurance against liability under Clause 16.1 over that for which he was insured at the date of the Client's first invitation to him for a proposal for the Services,
- (iii) insures against public/third party liability,
- (iv) increases his insurance against public/third party liability over that for which he was insured at the date of the Client's first invitation to him for a proposal for the Services,
- (v) effects other insurances.

If so requested, the Consultant shall make all reasonable efforts to effect such insurance or increase in insurance with an insurer and on terms acceptable to the Client.

The cost of such insurance or increase in insurance shall be at the expense of the Client.

INSURANCE 20. OF CLIENT'S PROPERTY

Unless otherwise requested by the Client in writing the Consultant shall make all reasonable efforts to insure on terms acceptable to the Client:

- (i) against loss or damage to the property of the Client supplied or paid for under Clause 6.
- (ii) against liabilities arising out of the use of such property.

The cost of such insurance shall be at the expense of the Client.

COMMENCEMENT, COMPLETION, ALTERATION AND TERMINATION OF THE AGREEMENT

- AGREEMENT 21. EFFECTIVE** The Agreement is effective from the date of receipt by the Consultant of the Client's Letter of Acceptance of the Consultant's proposal or of the latest signature necessary to complete the Formal Agreement, if any, whichever is the later.
- COMMENCEMENT AND COMPLETION 22.** The Services shall be commenced and completed at the times or within the periods stated in Part II subject to extensions in accordance with the Agreement..
- VARIATIONS 23.** The Agreement can be varied on application by either party by written agreement of the parties.
- FURTHER PROPOSALS 24.** If requested by the Client in writing, the Consultant shall submit proposals for altering the Services. The preparation and submission of such proposals shall be an Additional Service.
- DELAYS 25.** If the Services are impeded or delayed by the Client or his contractors so as to increase the amount or duration of the Services:
- (i) The Consultant shall inform the Client of the circumstances and probable effects.
 - (ii) The increase shall be regarded as Additional Services.
 - (iii) The time for completion of the Services shall be increased accordingly.
- CHANGED CIRCUMSTANCES 26.** If circumstances arise for which the Consultant is not responsible and which make it irresponsible or impossible for him to perform in whole or in part the Services in accordance with the Agreement he shall promptly dispatch a notice to the Client.
- In these circumstances if certain Services have to be suspended, the time for their completion shall be extended until the circumstances no longer apply plus a reasonable period not exceeding 42 days for resumption of them.
- If the speed of performing certain Services has to be reduced, the time for their completion shall be extended as may be made necessary by the circumstances.

**ABANDONMENT, 27.
SUSPENSION OR
TERMINATION**

By Notice of the Client 27.1

- (i) The Client may suspend all or part of the Services or terminate the Agreement by notice of at least 56 days to the Consultant who shall immediately make arrangements to stop the Services and minimise expenditure.
- (ii) If the Client considers that the Consultant is without good reason not discharging his obligations he can inform the Consultant by notice stating the grounds for the notice. If a satisfactory reply is not received within 21 days the Client can by a further notice terminate the Agreement provided that such further notice is given within 35 days of the Client's former notice.

By Notice of the Consultant 27.2

After giving at least 14 days' notice to the Client, the Consultant can by a further notice of at least 42 days terminate the Agreement, or at his discretion without prejudice to the right to terminate can suspend or continue suspension of performance of the whole or part of the Services

- (i) when 28 days after the due date for payment of an invoice he has not received payment of that part of it which has not by that time been contested in writing, or
- (ii) when Services have been suspended under either Clause 26 or Clause 27.1 and the period of suspension has exceeded 182 days.

**EXCEPTIONNAL 28.
SERVICES**

Upon the occurrence of circumstances described in Clause 26 or abandonment or suspension or resumption of Services or upon termination of the Agreement otherwise than under the provisions of Clause 27.1 (ii) any necessary work or expense by the Consultant extra to the Normal and Additional Services shall be regarded as Exceptional Services.

The performance of Exceptional Services shall entitle the Consultant to extra time necessary for their performance and to payment for performing them.

**RIGHTS AND 29.
LIABILITIES
OF PARTIES**

Termination of the Agreement shall not prejudice or affect the accrued rights or claims and liabilities of the parties.

After termination of the Agreement, the provisions of Clause 18 shall remain in force.

PAYMENT

PAYMENT 30. TO THE CONSULTANT

- (i) The Client shall pay the Consultant for Normal Services in accordance with the Conditions and with the details stated in Appendix C, and shall pay for Additional Services at rates and prices which are given in or based on those in Appendix C so far as they are applicable but otherwise as are agreed in accordance with Clause 23.
- (ii) Unless otherwise agreed in writing the Client shall pay the Consultant in respect of Exceptional Services
 - (a) as for Additional Services for extra time spent by the Consultant's personnel in the performance of the Services
 - (b) the net cost of all other extra expense incurred by the Consultant.

TIME FOR 31. PAYMENT

- (i) Amounts due to the Consultant shall be paid promptly.
- (ii) If the Consultant does not receive payment within the time stated in Part II he shall be paid Agreed Compensation at the rate defined in Part II compounded monthly on the sum overdue and in its currency reckoned from the due date for payment of the invoice. Such Agreed Compensation shall not affect the rights of the Consultant stated in Clause 27.2.

CURRENCY OF 32. PAYMENT

- (i) The currency applicable to the Agreement is that stated in Part II

Where payment is to be made in other currencies it shall be computed at rates of exchange as defined in Part II and paid net without deductions. Unless otherwise specified in Appendix C the Client warrants that the Consultant can transfer abroad promptly all Local and Foreign Currency amounts in connection with performance of the Services which are received by him in the Client's country.
- (ii) If at the date of the Agreement or during the performance of the Services the conditions in the Client's country are such as may be contrary to the Agreement either
 - (a) prevent or delay the transfer abroad of Local or Foreign Currency payments received by the Consultant in the Client's country, or
 - (b) restrict the availability or use of Foreign Currency in the Client's country, or

- (c) impose taxes or differential rates of exchange for the transfer from abroad of Foreign Currency into the Client's country by the Consultant for Local Currency expenditure and subsequent re-transfer abroad of Local Currency up to the same amount such as to inhibit the Consultant in the performance of the Services or to result in financial disadvantage to him,

the Client warrants that such shall be deemed circumstances justifying the application of Clause 26 if alternative financial arrangements are not made to the satisfaction of the Consultant.

**THIRD PARTY 33.
CHARGES
ON THE
CONSULTANT**

Except where specified in Part II or Appendix C

- (i) the Client shall whenever possible arrange that exemption is granted to the Consultant and those of his personnel who are not normally resident in the country of the Project from any payments required by the Government or authorised third parties in that country which arise from this Agreement in respect of:
 - (a) their remuneration
 - (b) their imported goods other than food and drink
 - (c) goods imported for the Services
 - (d) documents.
- (ii) whenever the Client is unsuccessful in arranging such exemption he shall reimburse the Consultant for such payments properly made.
- (iii) provided that the goods when no longer required for the purpose of the Services and not the property of the Client
 - (a) shall not be disposed of in the country of the Project without the Client's approval
 - (b) shall not be exported without payment to the Client of any refund or rebate recoverable and received from the Government or authorised third parties.

**DISPUTED 34.
INVOICES**

If any item or part of an item in an invoice submitted by the Consultant is contested by the Client, the Client shall give prompt notice with reasons and shall not delay payment on the remainder of the invoice. Sub-clause (ii) of Clause 31 shall apply to all contested amounts which are finally determined to have been payable to the Consultant.

**INDEPENDENT 35.
AUDIT**

The Consultant shall maintain up-to-date records which clearly identify relevant time and expense.

Except where the Agreement provides for lump sum payments, not later than twelve months after the completion or termination of the Services, the Client can at notice of not less than 7 days require that a reputable firm of accountants nominated by him audit any amount claimed by the Consultant by attending during normal working hours at the office where the records are maintained.

GENERAL PROVISIONS

LANGUAGES 36. AND LAW

In Part II there is stated the language or languages of the Agreement, the ruling language and the law to which the Agreement is subject.

CHANGES IN 37. LEGISLATION

If after the date of the Agreement the cost or duration of the Services is altered as a result of changes in or additions to the regulations in any country in which the Services are to be performed except that of the Consultant's principal place of business stated in Part II the agreed remuneration and time for completion shall be adjusted accordingly.

ASSIGNMENT 38. AND SUB- CONTRACTS

- (i) The Consultant shall not without the written consent of the Client assign the benefits from the Agreement other than money.
- (ii) Neither the Client nor the Consultant shall assign obligations under the Agreement without the written consent of the other party.
- (iii) The Consultant shall not without the written consent of the Client initiate or terminate any sub-contract for performance of all or part of the Services.

COPYRIGHT 39.

The Consultant retains copyright of all documents prepared by him. The Client shall be entitled to use them or copy them only for the Works and the purpose for which they are intended, and need not obtain the Consultant's permission to copy for such use.

CONFLICT OF 40. INTEREST

Unless otherwise agreed in writing by the Client, the Consultant and his personnel shall have no interest in nor receive remuneration in connection with the Project except as provided for in the Agreement.

The Consultant shall not engage in any activity which might conflict with the interests of the Client under the Agreement.

NOTICES 41.

Notices under the Agreement shall be in writing and will take effect from receipt at the address stated in Part II. Delivery can be by hand or facsimile message against a written confirmation of receipt or by registered letter or by telex subsequently confirmed by letter.

PUBLICATION 42.

Unless otherwise specified in Part II the Consultant, either alone or jointly with others, can publish material relating to the Works and Services. Publication shall be subject to approval of the Client if it is within two years of completion or termination of the Services.

SETTLEMENT OF DISPUTES

CLAIMS FOR 43. LOSS OR DAMAGE

Subject to Clause 17, any claim for loss or damage arising out of breach or termination of the Agreement shall be agreed between the Client and the Consultant or failing agreement shall be referred to arbitration in accordance with Clause 44.

ARBITRATION 44.

Any dispute or claim arising out of or relating to this Agreement or the breach, termination or invalidity thereof, shall be settled by arbitration in accordance with the Rules stipulated in Part II in force at the effective date of the Agreement.

The parties agree to comply with the awards resulting from arbitration and waive their rights to any form of appeal insofar as such waiver can validly be made.

CONDITIONS OF PARTICULAR APPLICATION**A. References from Clauses in Part I****1. Definitions**

(a) The Project is _____

17. Duration of Liability _____
Reckoned from _____

18.1 Limit of Compensation _____

22. Commencement _____
Completion _____

31. (ii) Time for Payment _____

Local Currency _____ days

Foreign Currency _____ days

Agreed Compensation
for overdue payment _____ percent per day

32. Currency of Agreement _____

Currencies of payments			
Rate of exchange to currency of Agreement			

36. Language(s) of the Agreement _____

Ruling language _____

Law to which Agreement is subject _____

B. Additional Clauses



APPENDIX A

SCOPE OF SERVICE

The Scope of the Consultant's Services as finally negotiated and agreed should be clearly expressed in Appendix A.

See the White Book Guide for additional details on how to complete this Appendix.

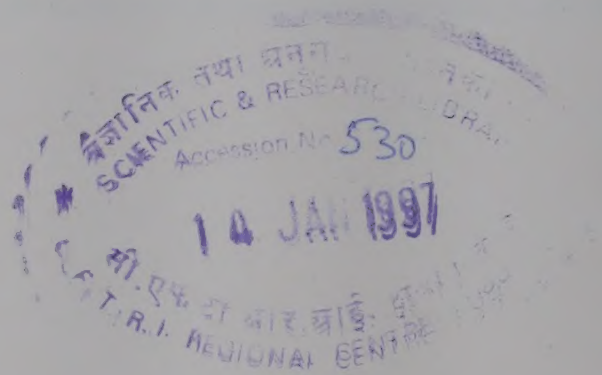


APPENDIX B

PERSONNEL, EQUIPMENT, FACILITIES AND SERVICES OF OTHERS TO BE PROVIDED BY THE CLIENT

In Appendix B, list as completely and in as much detail as possible the personnel, equipment, facilities and services to be provided by the Client.

See the White Book Guide for additional details on how to complete this Appendix.





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